

THE
WONDERS
OF
NATURE AND ART;
BEING AN
ACCOUNT
OF

Whatever is most Curious and Remarkable
throughout the WORLD;

Whether relating to its

ANIMALS, VEGETABLES, MINERALS, VOLCA-
NOES, CATARACTS, HOT and COLD SPRINGS,
AND

Other Parts of NATURAL HISTORY;

OR, TO THE

BUILDINGS, MANUFACTURES, INVENTIONS,
and DISCOVERIES of its Inhabitants.

The Whole collected from the Writings of the best
HISTORIANS, TRAVELLERS, GEOGRAPHERS, and
PHILOSOPHERS, among which are some *Original*
Manuscripts; interspersed with pious OBSERVA-
TIONS and REFLECTIONS; illustrated with NOTES,
and adorned with COPPER-PLATES.

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M DCC LXVIII.

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CHAP. VIII.
of GREENLAND.

What part of the earth Greenland properly belongs, is yet unknown; yet as it extends to the east, as far as Iceland, it may properly be placed here, though it is supposed to extend to the west, as far as Spitzberg, which is seated in thirty degrees east longitude. The most southerly part of this country lies in the fifty-ninth degree fifty minutes north latitude, from whence the coast stretches to the north-west, beyond the seventy-eighth degree of north latitude, while the eastern coast, according to the Danish writers, reaches to the eighty second. The west coast was first discovered in 1585, by Mr. John Davis, an Englishman, from whom the streights that run between the continent of North America, and Greenland, are called by his name.

THE east side of Greenland, which is opposite to Iceland, is rendered inaccessible by mountains

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tains of ice, with which the sea is covered, and which rise to an astonishing height; and the west side towards Davis's Streights, consists of little more than confused heaps of rocks, the summits of which are covered with everlasting ice and snow. However, the southern part is much better known, and as far as the Danish colonies have penetrated, the climate is not insupportable. During the summer season, which lasts from the end of May to the middle of September, the sun shines bright and very warm; over the main land no cloud can be seen, the weather being pleasant and always clear, though the islands are covered with a damp fog, which throughout the whole year, except in the month of August, hover over the islands. The rains that fall here are neither frequent nor heavy; and in this climate it seldom thunders. However, these favourable circumstances, with respect to the weather, are true only of the southern parts of the country, subject to the Danes; for to the northward of the sixty-eighth degree of latitude, the cold in winter is so excessive, that the strongest French brandy will freeze near the fire-side. As the weather is in this climate very calm, the ice in the bays between the islands, is not disturbed till the end of August; and even in the creeks it does not begin to thaw till the close of May. From June to August, the sun is continually above the horizon, and consequently during that term, they have no night; but in winter the sun is invisible to the Greenlanders, and their day is nothing more than the morning and evening twilight, which do not last above two hours.

VEGETABLES.

IN the southern parts is fine grass, from which the country obtained its name; with yellow flowers, the roots of which have the smell of roses: angelica, scurvy-grass, wild rosemary, and some good excellent herbs. In some places, cabbages and turnips thrive very well; and the latter are remarkably sweet; but there is not a tree to be seen in the country, except a little copice of birch trees, whose trunks are no thicker than a man's leg. Some shrubs are dispersed here and there; as small juniper, gooseberry, and bilberry-bushes, &c.

It is not yet known what minerals are contained in the Greenland mountains. There are, however, rocks of asbestos, from which considerable quantities have been hewn. Some mountains also consist of an imperfect kind of variegated marble, of which the inhabitants make kettles, and some other utensils.

ANIMALS.

THE only domestic animals found here are dogs that never bark, but snarl and howl: they are timorous and unfit for the chase; yet if not tamed when young, become wild and very mischievous. The Greenlanders kill and eat these dogs; and often use them to draw their sledges, yoking four, six, and sometimes eight or ten to a sledge, loaden with five or six of the largest seals, with the master sitting upon them, who drives as fast with them, as we can do with good horses; for they often travel sixty miles in a winter's day upon the ice.

THE White Bears of Greenland are differently shaped from those of other countries, being leaner and swifter, with a longer neck, and a head more like a hound's than that of a common bear; neither can they properly be said to growl, but rather bark like a dog that is hoarse. Their skin is a good defence against the severity of the cold, their hair being long and soft as wool, and their flesh is indifferent food. Some of these creatures are six feet high, and fourteen in length; and they are said to be so tender of their young, that they will rather suffer themselves to be killed, than desert them when in danger. They are often found floating on the ice at a vast distance from the shore, and swim from one mountain of ice to another, feeding on dead whales or other fishes they happen to meet with. Those who have wintered in Greenland observe, that these bears are not to be seen during that season.

HERE are rein-deer, very different from those of Lapland. They are grey and shaggy, with horns like a hart, having three or four branches on each side, about a foot long, and two inches broad; and they have long ears and short tails. They are very lean in the spring; but in summer they grow so fat by feeding on a sort of yellow moss, that their flesh on the ribs is sometimes four inches deep. Their flesh is very good roasted, and so are the foxes of Greenland, of which there are great numbers of different colours.

NEITHER snakes, nor any other venomous creatures, can live in this climate, nor are they plagued with rats, mice, or beetles; they have neither ants nor bees, yet moschettos, or gnats, swarm in this country, and are extremely troublesome.

GREEN-





A Whale

GREENLAND abounds with eagles, falcons, large speckled owls, ravens, and in short all the kinds of land and sea-fowl known in Norway, are seen here in amazing numbers. The fresh water in Greenland has been highly extolled for its salubrity and palatableness. The rivers afford plenty of salmon, trout, and cray-fish; and the sea yields an inexhaustible variety of all kinds of fish, except oysters.

THE Whales are larger than in any other part of the world, some of them being two hundred feet in length, but the more usual size is from fifty to eighty or a hundred. The true whale differs from other fish that bear that name in his having no teeth, instead of which he has a kind of horny substance growing on each side of his upper jaw, consisting of a great number of different blades, some of them a foot broad at the bottom, and twelve or fifteen feet long, ending in a sort of fringe, not unlike hog's bristles. These split and fashioned are what we call Whalebone, and the genital member of the animal serves for the same purpose, but not the fins, as is commonly imagined. The whale has a very large flattish head, with two small eyes, not bigger than those of an ox; and for his bulk he has a narrow throat, being seldom more than a foot wide, tho' he can open his jaws several fathoms. On the top of his head he has two holes, through which he draws in air, and discharges water taken in at his mouth, which he spouts up to a surprizing height. His bones are hard like those of quadrupeds; but, instead of having a cavity in the middle, they are porous and full of marrow. The belly of the whale is white, but the rest of the body is black or reddish; and the flesh is coarse, hard, and mixed with sinews. The outermost skin is

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thin,

thin, which covers another almost an inch thick, but so tender, that it is of little or no defence to the animal against the assaults of its enemies. Between this skin and the flesh lies the fat or blubber, from whence train oil is procured by boiling. The whale has very strong sinews about the tail, with which he turns and winds himself as he pleases, and swims with wonderful swiftness *, making a track in the sea like a large ship under sail. These animals are mightily tormented with a kind of lice, which sometimes eat large holes in their bodies; and it is supposed they feel great pain before a storm, being observed at such a time to twist and tumble about in a violent manner. As to the food of whales, it is probably small fishes of several sorts; but upon opening their bodies there is seldom found any thing but a few weeds, and a quantity of black insects like spiders, which are very numerous in the northern seas. —Whales copulate like four-footed beasts, bring forth their young alive, and suckle them with their milk.

THE profit arising from the bone and oil of these huge creatures induces the Dutch, English, and some merchants of other nations, to send annually a great many ships to the coast of Greenland, where they take them in the following

* In fishes the tail is the grand Instrument of swimming, not the fins, as is generally imagined, these only serving to keep their bodies well poised and balanced, and prevent vacillation. For this reason fishes are more strong and muscular in the tail than any other part; and it is observable that the motive parts of all animals are the strongest, as the thighs of men for walking, the pectoral muscles of birds for flying, &c.—The manner wherein fishes row themselves forwards by the tail is well explained by Borelli, in his treatise de Motu Animalium, Part I. Cap. 23.



the WHALE-FISHERY.

B. Cole Sculp.

manner. When the seamen see or hear a whale spout, every one hastens to his boat, of which there are five or six belonging to each ship, and six or seven men to each boat ; and having rowed till they come pretty near the whale, the harpooneer strikes him with his harpoon, which is a kind of javelin five or six feet long, pointed with steel and bearded like an arrow, to the other end whereof a line is fastened. This requires both strength and dexterity, in order to make the wound deep enough, and in the most proper place. As soon as the whale finds himself wounded, he plunges swiftly towards the bottom of the deep, and would inevitably sink the boat if they did not give him line enough, which they take care to do by fastening one to another, sometimes to the length of eight or nine hundred fathoms. The man at the helm observes which way the rope goes, and steers the boat accordingly, that it may run out directly forwards, otherwise the boat would be overfet ; and the Harpooneer keeps wetting the place where the line runs, lest the boat soon should take fire by the quickness of the motion. The other boats row before, and observe the line, now and then drawing it in gently when they find it slacken, to prevent the whale's entangling it amongst the rocks. When the fish is pretty far spent and weakened, he rises up again for air, upon which the harpooneer gives him a second wound, and perhaps they dart several little spears into his body ; till at length being quite tired, and fainting with the loss of blood, the men have an opportunity of approaching him, and thrusting a long steeled lance under his fins into his intestines, which soon puts a period to his life. His vitals being touched, he spouts out streams of blood instead of water, and rages most

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furiously, beating the sea with his tail till it is all on a foam, and the noise of it may be heard at a great distance; till having quite lost his strength, he turns on one side and expires.

ALL the boats are now employed in towing the floating carcase to the ship, against the side of which it is fastened by ropes, one round the neck, and another round the tail. This done, three or four men go down upon the whale with a sort of irons on their feet to prevent their slipping, and with large knives cut off the fat in pieces several feet long, which are drawn up into the ship by lines and pullies. Then they cut off the whalebone from the upper jaw of the fish with a hatchet made for that purpose, and having thus stripped the carcase of all its fat and fins, the rest is turned adrift, and is welcome food to the birds and white bears. As the large pieces of fat are cut off, the rest of the crew are employed in cutting them smaller, and picking out all the lean; after which they are put up in tubs, and stowed in the hold of the vessel. When the fishing season is over, nothing remains but to sail homewards, where the blubber is boiled and melted into oil.—In general this fishery is very profitable, but very uncertain, a ship sometimes taking seven or eight whales in one voyage, and at other times returning home without taking any thing at all.

BESIDES the whale, there are many other remarkable fishes and amphibious animals found near Greenland and in other parts of the northern ocean, which require a brief description. Some of these indeed are looked upon to be of the whale-kind, particularly the Fin-Fish, which equals the whale in length, but not in thickness, and has a fin on his back, which the whale
has

has not; from whence his name. He throws water higher than a whale of his size; has brown lips, which are twisted like a rope; and his body much resembles a tench in colour. He is extremely nimble, as well as strong; and is killed in the same manner as the whale. When these fish come upon the coast, the whales disappear.

THE Morfe, or Sea-Horse, is an amphibious creature as large as an ox, with four feet, a thick round head, and a short neck, in which lies his greatest strength. His eyes are red, his ears small, and his nostrils large, from whence he spouts water. His skin is very thick and covered with hair, and from his upper jaw proceed two long teeth, which are as white as snow, and more esteemed than ivory, as they keep their colour better. This creature is very bold, making towards the boat as soon as he is attacked, and endeavouring to overset it, sometimes tearing large pieces from it with his teeth; but the seamen generally give him a warm reception, and dispatch him with lances. When whales happen to be scarce, the oil and teeth of these animals help to supply the deficiency*.

THE Monoceros, or Sea-Unicorn, has been mentioned in the preceding chapter, as daring

* There is a little island, lying directly south of Greenland, between it and the continent of Europe, remarkable for the great number of morfes that frequent the coast. It is called Cherry-Island; and it appears from Harris's Collection, that the English have formerly made several profitable voyages thither, where in one season they got three hog's heads of morfes teeth, and made twenty-two tons of oil out of the flesh of those animals. In the year 1610 the Russia company took possession of the island, and that year they killed a thousand morfes, and made about fifty tons of oil: but we do not find that any ships have been sent thither for more than a hundred years past.

to attack the largest whale with his horn; but he is not the only enemy the whale has to deal with. The Sword-Fish, so called from his sharp pointed upper jaw resembling a sword, pursues the whale and fin-fish with great eagerness. They are of various sizes, from three to twenty feet in length, are shaped almost like a man's arm, and their eyes stand far out of their head. A few of them will dispatch a large whale, and when they have killed him they feed chiefly on his tongue; but sometimes they are deprived of their prey by the fishermen who are spectators of the combat.

ANOTHER enemy of the whale, and the most voracious of all, is the Hay, of which there are several sorts, the largest of them about eighteen feet long, and generally of a greyish colour. This fish does not kill the whale outright, but bites large pieces of fat from his sides, making holes as if they had been dug with a shovel; inasmuch, that fishermen have sometimes taken whales which have had great part of their blubber torn away in this manner. The liver of the hay is exceeding large, and abounds in oil; and his flesh, when dried some days in the air, and afterwards boiled or roasted, is accounted tolerable food; but the less the fish, the better.

WE shall conclude this account with an extract of the hardships sustained by eight Englishmen, who wintered in Greenland in the year 1630, which we hope will not be thought entirely foreign to our subject, nor prove unentertaining to the reader.

THREE ships were fitted out that year for Greenland; and one of them, a little before the time of their returning home, being straitened for provisions, the captain sent eight men ashore in a boat to kill venison, with orders to follow the
the

the ship to Green Harbour, which lies a little to the southward of the place where they went ashore. These men, having killed fourteen or fifteen deer, proposed to have gone on board the ship the day following; but a great quantity of ice driving towards the shore, the ship was obliged to stand so far out to sea, that, when they came to Green Harbour, she was out of sight. Now the ships being to leave Greenland within three days, they thought it most adviseable to make the best of their way to Bell-Sound, the place of rendezvous, distant from Green-Harbour about sixteen leagues to the southward. As they were under terrible apprehensions lest the shipping should be gone from thence before they arrived there, in order to lighten the boat and make the greater expedition, they flung the venison into the sea; but none of them knowing the coast very well, they over-shot the port above ten leagues; when, being sensible of their error, they returned to the northward. However, one of the company being positive that Bell-Sound lay farther to the south, they directed their course southward again; till being a second time convinced of their mistake, they turned again to the north, and at length arrived at the desired harbour; but they had spent so much time in rowing backwards and forwards, that the ships had actually sailed for England. As soon as they perceived this, they stood looking on one another, as men amazed at the distress to which they were on a sudden reduced, being neither provided with cloaths, food, firing, nor house to shelter themselves from the piercing cold they were to expect in so rigorous a climate. But their consternation being a little abated, they began to think of the properest means to keep

themselves alive during the approaching winter, in a country within twelve degrees of the pole, being the first that ever staid there during that dismal season: and perhaps history does not afford an instance of a company of men in so distressed a condition, that shewed more courage and patience, or made a wiser provision for their preservation.

THE first thing they agreed on was to go to Green-Harbour, where they arrived in twelve hours; and having killed near twenty deer and four bears, they brought them to Bell-Sound. Here happened to be a large booth erected, for the coopers to work in at the fishing season, eighty feet long and fifty broad, covered with tiles, and the sides well boarded. Within this they built another, whose length was twenty feet, the breadth sixteen, and the height ten, making it as close and warm as possible. They also provided themselves with wood, which they stowed between the beams and roof of the greater booth; but taking a slight survey of their provisions, they found there was not half enough to serve them all the winter, and therefore agreed to allow themselves but one meal a day, putting their confidence in heaven, and praying for strength and patience to go through their afflictions.

By the beginning of October the nights were grown long, the weather very cold, and the sea frozen over; and having now no business, as hitherto, to divert their melancholy thoughts, they began more than ever to reflect on their miserable condition, but received great comfort from their frequent and fervent devotions. And now, upon a more narrow survey of their provisions, they concluded to have only three meals
a week

a week of venison and bear, and four meals of fritters, which is a very loathsome food, being nothing but the scraps of whale's fat, flung away after they have been boiled for oil; and lest their firing should not hold out, they thought it proper to dress more meat at a time, and put it up in hogsheds.

ON the 14th of October the sun left them, but they had the moon continually, and also a glimmering kind of day-light for some hours, which grew less and less till the first of December, from which time to the 20th they could not perceive any day-light at all. As for light within doors, finding some sheet-lead upon one of the coolers, they made three lamps, which they supplied with oil that was fortunately left in the cooper's tent; and for wicks they made use of rope-yarn.

WITH the new year their day, or rather twilight, began to increase; and the cold also increased to that degree, that it raised blisters on their flesh as if they had been burnt, and if they touched iron it stuck to their fingers. On the third of February they were cheered again by the bright rays of the sun, which shone upon the tops of the snowy mountains; and, after so long and dismal a night, afforded them the most delightful scene that ever was beheld. What added to their joy was the appearance of the bears, one of which they killed at the door of their booth; but the cold was so intense, that they could not stay there to take off her skin, but dragged her into their house, and there cut her to pieces. Upon this they fed twenty days; and afterwards they killed several other bears, one of them six feet high; and having now plenty of food, and
eating

eating heartily two or three meals a day, they soon found their strength increase.

TOWARDS the middle of March the days were considerably lengthened; and the fowls, which on the approach of winter fled to the southward, began to resort to Greenland again in great numbers. The foxes also, which had kept close in their holes all winter, now appeared abroad; of which our countrymen took no less than fifty, and found them to be very good food when roasted.

IN May the weather beginning to grow warm, and the season for the arrival of the ships coming on, some of them went almost every day to the top of a mountain, to see if they could discern a sail; but on the 25th of that month, none of them happening to go abroad, one of them in the outward booth heard somebody hail the tent, which proved to be one of the boat's crew belonging to a ship just come from England. Of this the man had no sooner informed his companions, but they all ran out to meet their countrymen with such transports of joy as cannot be expressed; by whom they were not only kindly received, but upon their return to England they had a handsome gratuity, and were well provided for by the generosity of the merchants.

FROM the account of these poor mariners, thus providentially preserved, and restored to their native country, we shall lead the mind of the reader to the natural inhabitants of Greenland; in which we shall follow the reverend Mr. Egede, a Danish divine, who resided a number of years in a country, which had like to have proved fatal to the above English mariners, and where others that have been left there, have all actually perished.

INHABITANTS OF GREENLAND.

THE people we are now to describe are generally short, fat, plump, and well proportioned. Their faces are somewhat flat, their hair black and lank, and their complexion of a brownish red. They are seldom afflicted with epidemical diseases, and are strangers to the small pox: the scurvy is the reigning distemper, and their common remedy is scurvy-grass and other simples. They have neither surgeon nor physician among them, but readily rely on certain impostors, who pretend to be skilled in physic, and to foretel future events.

THEIR cloathing is made of the skins of their deer, the dog-fish, and of certain birds, sewed together, with the small guts of the seals; and there is very little difference between the habits of the two sexes. The dress of the men consists of a coat, with a hood sewed to it, that covers the head and shoulders. This coat reaches down to the knees. Their breeches fit very close; they wear no linen; and the hair of the skins the coat is made of, is turned inwards to keep them warm. Over this coat, they wear a large frock made of seal skins, dressed and tanned without the hair, in such a manner as to keep out the water. Between the leathern frock, and the under coat, they wear a kind of shirt, made of seals guts, which also helps to keep out the water from the under coat. However, those seated near the ports frequented by the Danes and Dutch, have shirts of striped linen, with coats and breeches, made of red and blue stuffs, which they buy of the Danish or Dutch merchants; but they are made after their own fashion, and these are

are worn upon extraordinary occasions. They had formerly stockings made of seal, or rein-deer skins; but now they have worsted stockings of different colours, as white, blue and red, which they purchase of the Danes; and they have shoes and boots made of seal skins well dressed.

THE coats of the married women are much larger than the rest; for in these they carry their children on their backs, they being their only swaddling cloaths and cradle. They wear drawers, which reach to the middle of the thigh; and over them, breeches, which come down to the knee. The drawers the women keep on day and night; but the breeches they only wear when they go abroad in winter, and pull them off as soon as they come home. Next to their body, they wear a waistcoat made of a young fawn skin, with the hairy side inward. The coat is sometimes made of fine coloured swan-skins, trimmed and edged with white, neatly wrought in the seams, and about the edges. Their shoes and boots are much like those of the men. Their hair, which is thick and long, is braided and tied up in a knot; they commonly go bare-headed, both without and within doors; and in the southern parts seldom wear their hoods, but when it rains or snows. Their principal finery consists in wearing coral and glass beads of several colours, about their neck and arms, and pendants in their ears. Some of them have also bracelets of black skin, set with pearls, with which they adorn their cloaths, and even their shoes. They likewise make black streaks between their eyes, on their fore-head, upon the chin, arms and hands, by passing under the skin, a needle and thread, made black. In the eyes of strangers this appears extremely hideous, but they think

think it ornamental, and say, that those who do not thus adorn their faces, shall have their heads turned into train-oil tubs, that shall be placed under the lamps that burn in the land of souls.

THE Greenlanders have their winter and summer habitations. The former, which are the largest, are dug deep in the earth, and raised with stone and turf a little above the surface of the ground. In this hut, the windows are on one side, made of seals guts, dressed and sewed together; or the maws of holybutts, which are white and transparent. On the other side, are placed the beds, which consist of benches, raised half a yard from the floor; their bedding being composed of the skins of seals and rein-deer. On the hearth is a great lamp, in the form of a half moon; and over it are hung their kettles, in which they boil their provisions: these are formed of a kind of marble, or where they have the advantages of trade, of brass, copper or tin. The entrance is dug narrow, and winding under ground, and the doors so low, that they creep on their hands and feet to get in, they being thus contrived to keep out the cold; and for the same purpose, the inside is lined with seal skins. Some of these houses afford lodging for seven or eight families, and though in one of them ten or twenty lamps of train oil are kept constantly burning, their smoke is not perceived to fill the room; for dry moss rubbed very small is laid on one side of the lamp, and being lighted, burns softly, causing no smoke, unless it be laid on too thick. These lamps give such a heat, as not only serves to boil their victuals, but to render their rooms as hot as a bagnio: however, to those who are not used to them, the smell of the house is extremely disagree-

disagreeable, both from the number of burning lamps, supplied with train oil; the various sorts of raw meat, fish, and fat, heaped up in these places, and especially their urine tubs, which smell intolerably.

THEIR summer habitations consist of a kind of tents, made of poles, set in a circular form, bending to a point at the top, fenced by a double cover, the innermost of which is the skins of seals, or rein-deer, with the hairy side inward; and the outermost of the same skins, but without hair, and dressed with fat, to prevent their being penetrated by the rain. In these tents, they receive the light from a curtain made of the guts of seals sewed together: in them they dress their meat with lamps, and have their beds. Their manner of dressing and eating their provisions is extremely disgustful. Their common food is the flesh of rein-deer and hares, all kinds of land and water-fowl, seals, several sorts of fresh water and sea-fish; and even some parts of the whale. They are said to prefer the blood of the seal to any other drink; but though they usually quench their thirst with water, they can drink a great deal of brandy, without being intoxicated.

THE chief qualifications required in a wife are skill in domestic affairs, and in cutting and sewing their garments. On the other hand, nothing recommends a man to the favour of the women, more than activity and success in fishing and hunting. It is remarkable that relations never intermarry, even to the third or fourth degree of consanguinity. They have a respectful idea of marriage; and in general, have but one wife. They are fond of their children to excess, and let them do whatever they please.

THE

THE chief employments of the men, are hunting and fishing, for which they have very curious tackle. The boats, in which they row out to sea, are about six yards in length, and only about a yard broad in the middle, ending in a very sharp point at both extremities. They are made of very thin narrow boards, fastened together with whalebone, and covered with seal-skins. One man alone goes out in these boats, the top of which is covered with skin, with an opening in the middle, which, when a man has entered, is fastened close round his waist, so that no water can enter the boat. These boats go at a prodigious rate, and a man will row sixty or seventy miles a day, though he has but one oar, which is six or seven feet long, and flat at both ends. These boats are easily upset, which is little regarded, if the owner escapes with life. The largest of the boats are chiefly used by women. They have likewise a kind of open barges, which are also pointed at both ends, but are not very deep: these are covered with seal-skins, and are high at the extremities. They make use of them in conveying their effects in their emigrations, or when they embark for the whale fishery.

WHEN they go to catch whales, they put on their best apparel, persuaded, that if they were not neatly dressed, the whale would shun them. Upon these occasions, about fifty men and women set out together in one of the large boats. They strike the whale with harpoons, to which are fastened lines, two or three fathoms long, made of seal-skins, at the end of which is a bag of a whole seal-skin, filled with air like a bladder, that the whale, on flying away with the harpoon in his body, may be the sooner tired, and the more easily found, the air bag preventing his staying

staying long under water. He no sooner loses strength, than they attack him with their spears and lances, till he is killed; and then putting on their coats, made of dressed seal-skins, with boots, gloves and caps, laced so tight together, that nothing can penetrate them, leap into the sea, and begin to slice off the fat, all round the body; they are even sometimes so daring as to get upon the whale's back, while he is yet alive, in order to make the quicker dispatch in killing him, and cutting away the fat.

THEY use much the same method in killing the seals, but in the northern parts, where the sea is frozen, they look out for the holes which the seals themselves make with their claws, of about the bigness of a shilling, that they may fetch their breath. On their finding one of these holes, they seat themselves near it, and no sooner perceive the seal put his snout to it for air, than they strike him with a small harpoon, which they have ready in their hand, holding in their other hand a strap fastened to it, a fathom in length. Having struck the seal, so that he cannot escape, they cut the hole large enough to get him up through it; and as soon as they have got his head above the ice, kill him, and then lift him out. They have also other methods of catching seals: they make a great hole in the ice, or, in spring, find them made by the seals themselves, thro' which they get upon the ice, in order to bask themselves in the sun. Near these holes, they place a low bench, upon which they lie down on their belly, having first made a small hole, near the large one, through which they softly let down a pole, headed with a harpoon, a strap being fastened to it, which one holds in his hand, while another, lying upon the bench, with his face downwards, watches

watches the coming of the seal; which when he perceives he cries *Ke*, upon which he who holds the pole strikes the seal. But in spring, when the seals lie upon the ice, near holes which they themselves have made, the Greenlanders, disguised in seal-skins, with a long pole in their hands, creep towards them, moving their heads forwards and backwards, and snorting like a seal; till coming near him, they strike him with the pole.

FISHING being the principal concern of the Greenlanders, we are from thence enabled to judge of their capacities. This is of the utmost importance to them, since their whole subsistence depends on their ability in fishing and hunting. In fishing, they make use of hooks of iron or bone; their lines are made of whalebone cut small and thin; and with this tackle they catch abundance of fish. Their way of fishing for small salmon, or sea trout, is as follows; at low water they build small enclosures of stone, near the mouth of a river, or any other place where the salmon enters: when the tide comes in, the salmon which enter the river, pass at high water over the enclosure, and remain in the river till the water ebbs, when the fishermen way-lay them, and stop the passage, till the time of low water, when the salmon are left on dry land, and may be caught with the hand: if they are left in holes, they take them with a pole, headed with iron hooks, or two sharp pointed bones,

THE Greenlanders are accustomed from their infancy to an unbounded liberty, all of them being on a level. When they meet together, they express their mirth by drumming, singing, and dancing; and though they have little regard to those forms of ceremony and decorum, in which the politeness of other nations consists, their

their conversation is free, open and chearful; nothing pleasing them better than merry jests and raillery. They live very sociably, and repose great confidence in each other. Amorous intrigues of an unlawful kind are seldom or never heard of among them; and as they abstain from theft, rapine, and violence among themselves, they never, upon any pretence, make war on their neighbours. They esteem themselves greatly superior to the Danes; and make no scruple of pilfering any thing from them, when it can be done with safety; but they have probably little idea of property; and as they behave with such integrity to each other, it is natural to suppose that they have learned this pilfering of the Dutch and Danish seamen. They are extremely hospitable, and indeed have most things in common; so that if there be any among them unable to work, they admit him freely to their tables. They are particularly remarkable for their good nature, and inoffensive behaviour: hatred and envy, strife and rage, are seldom heard of among them. They have as great an abhorrence of stealing from each other, as any nation upon earth, and therefore keep nothing under lock and key; for being in no fear of losing the fruits of their labour, they leave it free for every body to come at.

WHAT seems most extraordinary is, that tho' they are seated in frozen regions, that might be supposed to damp the genius, and extinguish the fire of imagination, they have a talent for poetry, and take extream delight in exerting it. The poems they compose are a kind of lyric odes, the harmony of which depends upon rhyme and quantity, there being a visible regularity in the number of syllables, of which their verses are composed, and even an evident regard to cadence

in

in their manner of repeating them. They use this sort of poetry, which, every thing considered, is as far from being rude, as it is from being exact, to express all their passions, as love, joy, grief, and more especially anger; for here when two people quarrel, it is said they challenge each other; not to fight, for that they never do but in jest, or by way of diversion; but to contend in verse; and he who first wants words to express himself in this poetical duel, is esteemed conquered, and thus the quarrel ends, without shedding blood, or a suit at law.

THOUGH the Greenlanders fix a certain value on iron, they neither use, nor have any knowledge of money; they are strangers to trades, arts, and sciences: they have no traffic among each other; and their commerce with foreigners is very inconsiderable. They never compute their time by weeks or years, but only by months; beginning their computation from the sun's first rising above their horizon in the winter: from whence they tell the moons, in order to know the exact season, in which every sort of fish, sea animals, and birds, seek the land, in order to regulate their different employments. According to their astronomical system, the heaven's turn round the point of a huge rock. They say the moon was once a youth, and the sun a young woman his sister, with whom he was familiar in the dark; but she being desirous to find out her lover, rubbed her hands with soot, with which she marked his white bear-skin coat; and hence they say came the spots in the moon. The sun flying from his embraces, ascended the air, whether the moon followed her, and still continues to pursue, without being able to overtake her. This however, is probably only a fiction of their poets.

THEY

THEY are charged with having no idea of a God; but this is probably ill founded, as they are convinced of the immortality of the soul, and believe, that as soon as a person dies, he goes to the land of spirits, and there enjoys the felicity of hunting from age to age, while the body remains behind, and moulders in the dust. They also maintain, that there is a spirit which they call Torngarsuk, to whom they ascribe a supernatural power, though not the creation of the world. The Angakuts, or Priests, form very whimsical and inconsistent ideas of this spirit; some representing him as without form, others giving him that of a bear, and others pretending that he has a large body, and but one arm. They assign him his abode in the lower regions of the earth, where they say the sun constantly shines, and there is plenty of good water, deer and fowls. They likewise believe that a spirit resides in the air, whom they name the Moderator or Retainer; for their Angakuts pretend, that he orders them to command the people to abstain from certain things, as preservatives from evil and danger. They are also persuaded, that the elements are governed by certain spirits.

OUR author, who was sent to Greenland by the Danish society for propagating the gospel, lived fifteen years among this harmless and inoffensive people; and had the pleasure of making a great number of converts. He returned to Copenhagen in 1736, and by his solicitations, a seminary was founded in that city for the education of missionaries to be sent to Greenland.

THE trade of this country is carried on by the Copenhagen company, who annually send three or four ships; and the Dutch are prohibited from coming within several miles of their colonies.

colonies. The commodities Greenland affords for commerce, are whale-bone, whale-blubber, sea unicorns horns, the skins of seals; bears, rein-deer, and foxes; which they barter for kettles of copper, brass, and tin; shirts made of white, blue, red and striped linens; coarse woollen cloth; large fishing hooks, saw, knives, needles, and other hardware; looking glasses, rafts, poles, deal boards, and chests.

We hope the length of this article will be excused by the curious reader, as it contains many circumstances worthy of being known; and relates to the people of a country, which from its coldness, has long been thought uninhabitable, by any of the human race.

CHAP. IX.

OF SWEDEN *and* LAPLAND.

LAKES, SPRINGS, and CATARACTS.

THE kingdom of Sweden is one of the largest in Europe, and in some places the soil is tolerably fruitful; but the great number of barren mountains dispersed over the face of the country give it a disagreeable aspect. From the mountains fall innumerable rivers, or rather torrents, not many of them navigable, on account of the rocks and cataracts that obstruct their passage; and these form several great lakes, some of which are fourscore English miles in length and twenty in breadth. If therefore we make abatements for the mountains, lakes, woods, heaths, and marshes, with which the country abounds, the habitable part of it will be reduced

to a small proportion compared to the extent of the whole.

AMONGST the lakes of Sweden, that called Vetter is so remarkable in many respects, that it ought by no means to escape our notice. It divides East and West Gothland, being in length from north to south above eighty miles, and about eighteen broad in the middle, growing narrower towards each extremity. The water of this lake is very clear, and in some places so deep, that it has been sounded with three hundred fathoms of line without finding the bottom. For the most part it is free from rocks, and has but few islands, the principal of which is Visingsoe, lying in the middle of the lake. It is often disturbed by storms, and sometimes so suddenly, that the surface begins to be ruffled before the least breath of wind is perceived, so that the cause seems to proceed from the bottom of the waters; and it is no uncommon thing for boats to be tossed by a storm in one part of the lake, whilst others not far off are in a perfect calm. That such eruptions and agitations of the waters are promoted by subterraneous winds, seems to be confirmed by various phenomena; for immediately before a storm, and whilst the sky is yet clear, there is perceived a noise like thunder in the lake, which Dr. Hearne tells us he has often heard himself, and which was always followed by a tempest. Of this the inhabitants of Visingsoe are more sensible than any others, for from that part of the island whence the wind will blow the next day, they hear a confused noise like the firing of cannon; and when this rumbling is heard in the east, it is generally followed by rain and hail. Some people have likewise observed, while the water has been very calm,

a great

a great number of little clouds, like so many darts, rising up here and there from the bottom of the lake, which uniting in the air formed a mizzling rain; whence it plainly appears, that this is much owing to subterraneous winds. To such winds undoubtedly, together with those from above, we may attribute the sudden thawing of the ice in the spring, which one minute is strong enough to bear horses and sledges, and the next is broken to pieces. The strange grumbling of the waters, which precedes this terrible eruption, warns travellers to make the best of their way; but those who happen to be at a great distance from land are immediately drowned, or float upon shoals of ice till they meet with relief: and what is still more dangerous, the ice sometimes with the least blast of wind sinks suddenly to the bottom.

THE violent under currents of water observed in this lake are also very surprizing, which directly opposing the winds and waves, give the fishermen a great deal of trouble. From these, as well as from its unfathomable depth and subterraneous winds, it is supposed to have a communication under ground with another large lake called Venner, about forty miles to the westward; and this seems to be confirmed by several whirlpools that lie between these lakes, two of which have been founded, and found of a vast depth. What farther countenances this opinion is, that some years, without any visible cause, the waters increase, and decrease again the following years, as several curious persons have observed.

THERE is a spring not far from the lake Vetter, called the Hungry or Prophetic Fountain, because they say it never has plenty of water but when there is a scarcity of corn the following year. It lies in a valley encompassed with sandy hills,

hills, and has this peculiarity, that in a rainy summer it is commonly dry, whereas in the driest summers it sometimes overflows the highway near Vadstein. In 1685, which was a very wet year, this spring was quite dried up; but the next summer, which was not so rainy, it was observed to increase: and in the very dry summer of the year 1705, when all the neighbouring springs entirely failed, this had a plentiful stream of water.

CATARACTS, as we have said already, are frequent in the rivers of Sweden; but the most noted of all, and the only one worth giving an account of, is that within a few leagues of Gottenburg; where a river, which issues from the lake Venner, falls down a prodigious high precipice into a deep pit, with a terrible noise, and with such violence, that large masts, which are floated down the river to Gottenburgh, frequently dive so far under water by the fall if they happen to pitch endways, that some are half an hour, others three quarters, and some a whole hour or more, before they rise up again to the surface. Many attempts have been made to find the depth of this hole, with lines of several hundred fathoms; but no bottom could ever be discovered.

WITH respect to Lapland, which lies to the north of Sweden, it seems in winter, upon a superficial view, scarce fit to be the habitation of man; for in most places it abounds with rocks and mountains, whose summits seem to pierce the clouds, and are covered with everlasting snow. In other parts, the country spreads out into barren heaths, and sandy deserts overrun with moss, fern, and to appearance, unprofitable weeds; one barren wild, stretching beyond another, with little or no pasture growing on the intermediate spots. Besides these inconveniencies, the length
and

and severity of winter, with the cold, hideous winter nights, and the depth of snow that covers this desolate region, one would imagine sufficient to deter every human being from fixing his abode in this inhospitable country. The account given by M. Maupertuis, of the rigour of this climate, when, by order of the French king, he went to determine the figure of the earth at the polar circle, is enough to make any man shudder, tho' his observations were made in the southern borders of this country. He observes, that in December, the snow continually falling, or ready to fall, hid the sun during the few moments he might have appeared at mid-day. In January the cold was increased to that degree, that M. Reaumur's mercurial thermometer, which at Paris, in the great frost of 1709, it was thought strange to see fall to fourteen degrees below the freezing point, was now got down to thirty-seven. The spirit of wine in the others was frozen; and if the door of a warm room was opened, the external air, in a moment converted all the vapour in it into snow; whirling it round in white vortexes. If they went abroad, they felt as if the air was tearing their breasts in pieces; and within doors the cracking of the wood, of which the houses are built, continually alarmed them with an increase of cold; and people are often seen in this country, who have lost a leg or an arm, by the frost. The cold, which during the winter is always very great, increases by such violent and sudden fits, as are almost infallibly fatal to those who have the unhappiness to be exposed to it; and sometimes, sudden tempests of snow rise, that are still more dangerous. The winds seem at once to blow from all quarters, and drive about the snow with

such fury, that all the roads are in a moment rendered invisible. "How dreadful is the situation of a person, says our author, surprized in the fields by such a storm; his knowledge of the country, and even the mark he may have taken by the trees, cannot avail him; he is blinded by the snow, and if he attempts to find his way home, is generally lost. In short, during the whole winter, the cold was so excessive, that on the seventh of April, at five in the morning, the thermometer was fallen to twenty divisions below the point of freezing, though every afternoon it rose two or three divisions above it: a difference in the height not much less than that which the greatest heat and cold felt at Paris usually produce in that instrument. Thus in twenty-four hours we had all the variety felt in the temperature zones in the compass of a whole year." At length, in summer, when the air is warmed by the sun, this country is infested with such swarms of gnats and flies of various species, that like clouds they darken the sky, and obscure the light of the sun. These fix on every part of the body, bite with unremitting fury; and some of them, wherever they fix, draw blood.

YET notwithstanding all these disadvantages, nature has bestowed on these dreary regions such conveniencies, that as much content and happiness are to be found there as in many countries that enjoy the most favourable climate. The mountains, which rise to a prodigious height, and are of great extent, are perhaps intended by the author of nature, to shelter the plains from violent winds; and even their wildness and irregularity appear very beautiful, especially in summer, when the alternate succession of hills and vallies

vallies exhibit a delightful variety of prospects; and there are some places, which in that season may be reckoned among the most enchanting spots in the world. It has also been found, that these mountains are extremely rich in ores and fossils, particularly the largest and clearest rock crystals, topazes, purple amethysts, quicksilver, native cinabar, and load-stones.

THOUGH the days in winter are extremely short, and the nights long and tedious, this is in some measure compensated by the pleasant luminous summers, when in the greatest part of this country the sun is several weeks visible above the horizon. Even in winter, the brightness of the moonlight, the twinkling of the stars, and the effulgent corruscations of the aurora borealis, afford a light sufficient for most occasions of life. Maupertuis observes, that “The short days are
 “no sooner closed, than fires of a thousand figures and colours light up the sky, as if designed to compensate for the absence of the sun. These fires have not here, as in more southern climates, any constant situation. Tho’ a luminous arch is often seen fixed towards the north, they seem more frequently to possess the whole extent of the hemisphere. Sometimes they begin in the form of a great scarf of bright light, with its extremities upon the horizon, which, with a motion resembling that of a fishing-net, glides softly up the sky, preserving in this motion a direction nearly perpendicular to the meridian; and most commonly after these preludes, all the lights unite at the zenith, and form the top of a crown. Arcs like those seen in France towards the north, are here frequently situated towards the south; and often towards both the north

“ and south at once. Their summits approach
“ each other; the distance of their extremities
“ widens towards the horizon. I have seen some
“ of the opposite arcs, whose summits almost
“ joined at the zenith; and both the one and the
“ other have frequently several concentric arcs
“ beyond it. Their tops are all placed in the
“ direction of the meridian, though a little de-
“ clination to the west; which I did not find to
“ be constant, and which is sometimes insensible.
“ It would be endless to mention all the different
“ figures these meteors assume, and the various
“ motions with which they are agitated. Their
“ motion is most commonly like that of a pair
“ of colours waved in the air, and the different
“ tints of their light give them the appearance
“ of so many vast streamers of changeable taf-
“ fety, and sometimes they line a part of the sky
“ with scarlet. On the eighteenth of December
“ I saw a phenomenon of this kind, that in the
“ midst of all the wonders to which I was now
“ every day accustomed, raised my admiration.
“ To the south a great space of the sky appear-
“ ed tinged with so lively a red, that the whole
“ constellation of Orion looked as if it had been
“ dipped in blood. This light, which was at
“ first fixed, soon moved, and changing into
“ other colours, violet and blue, settled into a
“ dome, whose top stood a little to the south-
“ west of the zenith. The moon shone bright,
“ but did not in the least efface it. In this country,
“ where there are lights of so many different co-
“ lours, I never saw but two that were red; and
“ such are taken for presages of some great mis-
“ fortune. After all, when people gaze at these
“ phenomena with an unphilosophic eye, it is
“ not surprizing if they discover in them armies
“ engaged,

"engaged, fiery chariots, and a thousand other prodigies."

ANOTHER advantage is the twilight, which begins four or five hours before sun rise, and lasts as long after that luminary is set; indeed, many of the inhabitants sleep away most of the dark season, and employ the luminous part of the year, in their respective occupations; and generally suffer little in their health from this inconvenience.

F O S S I L S.

SWEDEN abounds with various kinds of minerals and other fossils; and among its mines there is one of silver, into which the workmen are let down in baskets to the depth of above a hundred fathoms, where the roof of the mine is as high as a church, supported by vast arches of oak; and from thence they descend by ladders or baskets to the lowest part of the mine, at least forty fathoms more. It is not known when this mine was first discovered, but it must have been wrought for many ages. The ore yields but indifferently, and requires great pains to refine it; however it annually produces about twenty thousand crowns-worth of fine silver, of which the King has the pre-emption, paying one-fourth less than the real value.—Several mines of silver and copper were discovered last century in the Swedish Lapland.

COPPER is found plentifully in several parts of Sweden, and is reckoned the finest in Europe. The most noted mine is of vast extent, and about eighty fathoms deep, but it is said to have suffered much by the falling in of the roof; and the working of it is attended with great discouragement, from the large share the crown

has in the profit *. The Copper made yearly out of this mine amounts to the value of two hundred thousand pounds, whereof the King has a fourth part, and a duty upon the remainder of 25 *per cent.* when it is exported unwrought. — Copper is of all metals the most ductile and malleable after gold and silver, and abounds much in vitriol and sulphur. It is found in glebes or stones of various forms and colours, which are first beaten small and washed, to separate all the earthy and impure parts wherewith they are mixed. After washing they are melted, and the metal run into a sort of moulds, which form large blocks, by some called *Salmons*, and by others *Cakes of Copper*. To render it more pure and beautiful, they melt it again once or twice, some of its coarse extraneous parts being left at each fusion, and a quantity of tin and antimony added; and in this state it is called *Rose-Copper*. — This metal is often found native in a malleable state, sometimes in beautiful branched forms or small slender fibres, and sometimes in little globular lumps, or masses of an irregular figure.

THE mines of Sweden likewise afford vast quantities of excellent iron, of which, besides

* Some years ago an Italian gentleman came into Sweden, with proposals to make copper a shorter and cheaper way than had till then been practised, so as to make that in five days which before required three weeks, and with fewer hands, and one-fifth part of the charcoal. The bargain was made, and his reward to be 100,000 crowns. His first essay succeeded to admiration; but when he came to work in earnest, and had got his new-invented furnaces built to his mind, the miners, as he complained, picked out the worst ore, and were otherwise so envious and untractable, that he failed of success, and lost his reward: nor was it without difficulty that he obtained leave to buy ore, and practise his invention at his own expence,

what

what is manufactured in the country, they export yearly to the value of near three hundred thousand pounds,—Of the nature of iron-ore, or the manner of working it, we need say nothing in this place, having in our first volume given a sufficient account thereof in speaking of our iron works in the forest of Dean in Gloucestershire: but we shall here take occasion to describe that wonderful fossil call'd the Magnet or Loadstone, which is found plentifully in the iron-mines of Sweden, and indeed in all countries that have such mines, tho' the best are said to be brought from Bengal and China.

THE Magnet is not properly to be considered as a distinct species of fossils, being in reality nothing but a very rich iron ore, found in detached masses of various forms and sizes, of a dusky iron-grey, and often tinged with a brownish or reddish colour. It is very heavy and hard, of an uneven surface, and of a firm structure, but usually with some porous irregularities within. It is endued with several extraordinary properties, as that of attracting iron, and directing its poles to those of the world, of which, so far as they relate to the Mariner's Compass, we have already taken notice*; but for the sake of such of our readers as may not be acquainted with the virtues and phaenomena of the loadstone, we shall here enumerate some of the most remarkable. 1. Every magnet has two poles, one of which points northwards, the other southwards; and if the magnet be divided into ever so many pieces, the two poles will be found in each piece. 2. One of these poles attracts, the other repels iron, but no other body. 3. The magnetic virtue is commu-

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nicated

* See Vol. I. under the arts, &c. of Great Britain.

nicated to iron by the touch, and that very speedily; though the longer the iron touches or joins the stone, the longer will its communicated virtue hold. 4. The magnet loses none of its own virtue by what it communicates to the iron. 5. A piece of iron so touched by the loadstone, and nicely suspended on a sharp point, will settle itself in a direction nearly north and south. 6. The end touched with the south pole of the stone will point northwards, and so *vice versa*. 7. A strong magnet, at the least distance from a lesser or a weaker, cannot draw to it a piece of iron adhering actually to such lesser or weaker stone; but if it comes to touch it, it can draw it from the other: and yet a weaker magnet, or even a little piece of iron, can draw away another piece contiguous to a greater or stronger load-stone. 8. A plate of iron only, but no other body interposed, can hinder the operation of the magnet, either as to its attractive or directive quality. 9. The virtue of a loadstone may be impaired by lying long in a wrong position*, as also by rust, wet, &c. and may be quite destroyed by fire. 10. A piece of iron wire well touched, upon being bent round in a ring,

* Several ways have been tried, with little success, for recovering the decayed virtue of loadstones; but there is a remarkable experiment of this kind made by Mr. Haac, which answered the purpose so well that it deserves to be mentioned. This gentleman had a loadstone which would take up fourteen pounds and a half, but having laid it by for several years he found it had lost great part of its virtue; which he endeavoured to recover by several means, but without success. At last he reflected, that by use and exercise the powers of animal bodies were often improved, and it might possibly happen so with respect to some properties or powers of inanimate bodies. Upon this thought he hung as much weight to the stone as it would sustain, and so left it for the space of some weeks. Then returning he applied

more

a ring, or coiled round on a stick, will generally lose its directive virtue, or at least have it much diminished; but if the whole length of the wire be not bent, so that the two ends be left strait, the virtue will not be destroyed in those parts, though it will in all the rest. 11. A piece of wire that has been touched, being split or cleft in two, the poles are sometimes changed, as in a cleft magnet, the north becoming the south, and the south the north; and sometimes one half of the wire will retain its former poles, and those of the other half be changed. 12. By drawing the back of a knife, or a long piece of steel-wire, &c. leisurely over the pole of a magnet, carrying the motion from the middle of the stone to the pole, the knife or wire will accordingly attract one end of the needle; but if the knife or wire be drawn from the same pole to the middle of the stone, it will repel that one end of the needle which in the other case it attracts. 13. If either a magnet or piece of iron be laid on a cork, so as to float freely in the water, it will be found, that which soever of the two is held in the hand, the other will be drawn towards it; so that iron attracts the magnet as much as it is attracted by it. 14. As the magnet communicates its virtue to iron, so when armed (as they call it) or set in iron, it will take up a greater weight of it than it can alone *. 15. A knife, &c. touched with

a mag-

more weight to the former, which it easily bore; and thus by repeating the addition of more weight at several periods, in about two years time the stone had not only recovered its former strength, but increased it so far, that it would now take up more than twenty pounds.

* It is likewise observable, that the power or force of magnets is generally greater in small than in large ones, in proportion to their bulk. Those of a large size will rarely take

a magnet acquires a greater or less degree of virtue, according to the part it is touched on. It receives the strongest touch when it is drawn slowly from the handle towards the point over one of the poles of the magnet; and if the same knife thus touched, and in possession of a strong attractive power, be retouched in a contrary direction, viz. by drawing it from the point towards the handle over the same pole, it immediately loses all its virtue. 16. The magnet acts with the same force in vacuo, as in the open air *.——We

may take up more iron than three or four times their own weight; whereas if small ones do not take up more than eight, ten, or twelve times their weight, they are reckoned but indifferent. A gentleman at Bruton in Somersetshire, had a magnet, whose weight, with the armature, was but 43 grains, and yet would take up 1032 grains, which is 24 times its weight: and we have heard of another gentleman who wears one in his ring, that scarce weighs three grains, and will take up near 750 grains, which is 250 times its weight; but this is an instance hardly to be paralleled.

* These are the principal phenomena of the magnet; but to account for the manner in which they are produced, we have yet no satisfactory hypothesis. Some of the ancients ascribe the action of the magnet to a soul that animates it, and others to a certain sympathy between the effluvia of iron and those of the magnet. The chief opinion that prevails among the moderns is that of Des Cartes, maintained by Malebranche, Rohault, &c. and even admitted and confirmed by Mr. Boyle and other great philosophers. This supposes a subtle, impalpable, and invisible matter, striated or channelled, continually circulating round the earth in the plains of the meridians, re-entering at the pole opposite to that from which it issued, and so passing through the earth in a direction parallel to its axis. The magnet, it is imagined, has two poles answerable to those of the earth, and out of these issues a matter like that just mentioned, which gives the impulse whereby iron tends to the magnet, and produces what we call Attraction. Now besides the matter re-entering the poles, there is a quantity of it continually circulating

round

may add to this, that iron bars, by standing long in an erect position, acquire a magnetic virtue to a surprizing degree, the lower end of such bars being the north pole, and the upper the southern. Nay, tongs and pokers, by being often heated, and set to cool again in a posture nearly erect, have acquired this wonderful property.

THERE is a sort of stone found in Sweden, which yields sulphur, vitriol, alum, and minium, whereof Sir Gilbert Talbot has given us the following account. It is ponderous, and of a yellow colour, intermixed with streaks of white, as if composed of gold and silver. It runs in veins among the rocks, on which they lay wood and set it on fire; and when the stone is heated, they throw water upon it to make it rend, and dig it up with mattocks. They afterwards break it into smaller pieces, and melt it in ovens, in iron pots, which are placed sloping, so that the melted matter may run out of one pot into another set to receive it at the mouth of the oven. This running of the stone is Sulphur; and the remaining mass is carried out, and laid on a hill, where

round the magnet, and forming a kind of vortex; and the spaces wherein this matter moves is the sphere of the magnet's activity, within which its attractive faculty is confined. The essence of a magnet therefore is supposed to consist in its being perforated by an infinite number of parallel pores, some whereof are disposed to admit the striated matter from the north pole of the world, others that of the south; and hence the north and south poles of the magnet.—Mr. Whiston takes the directive power of the loadstone to be mechanical, ascribing it to the circulating effluvia, of which he thinks there are evident indications in magnetic experiments; as Mr. Boyle thinks there are of the magnetic effluvia of the earth, tho' they were never yet rendered sensible. But the attractive power Mr. Whiston supposes entirely immaterial, like the power of gravity.

it is exposed to the sun and air for two years. It then takes fire of itself, yielding a thin blue flame, scarce discernible in the day-time, and leaving a blue dust behind it; which the workmen observing, they dig it up, and put it into great tubs of water to infuse for twenty-four hours. The water is afterwards boiled in kettles, and put into cooling tubs, wherein cross sticks are placed, on which the Vitriol fastens like sugar-candy. What remains of the water, after the extraction of the vitriol, is mixed with an eighth part of urine and the lees of wood-ashes; which being again boiled very strong, and set to cool in tubs, the sticks placed in them are incrusted with Alum. In the water that remains after the alum there is found a sediment, which being separated from the water, and burnt in an oven, becomes red, and is the Minium wherewith they paint their houses *.

ANIMALS.

THE vast woods and mountains of Sweden and Lapland abound with wild beasts of various kinds, such as bears, elks, deer, wolves, foxes, &c. most of which are too well known to need a description. The Elk, indeed, is a creature which some of our readers may neither have seen nor heard of, and therefore we shall describe it here, though it is not peculiar to Sweden, but found in the forests of Muscovy, Poland, and

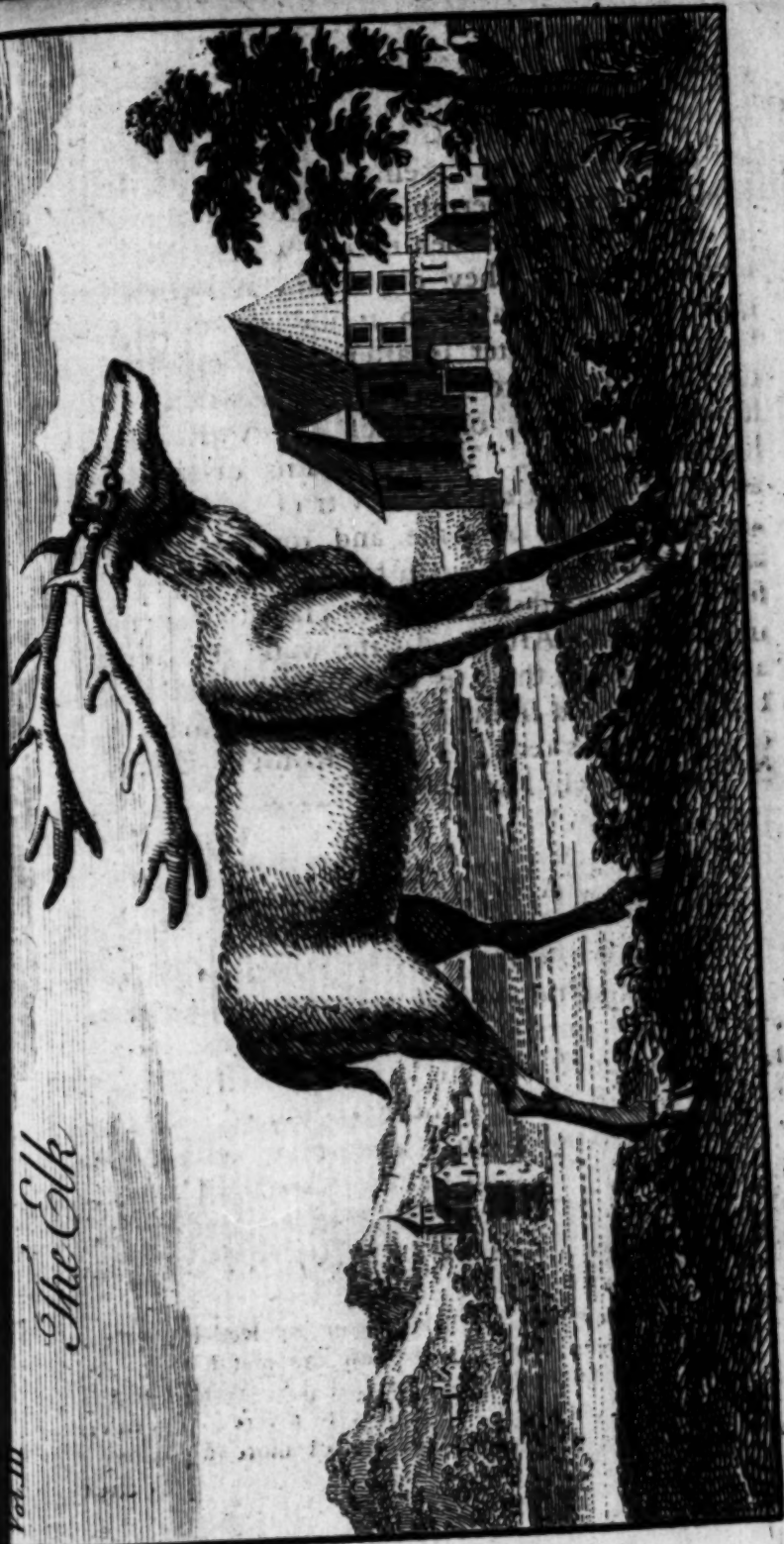
* What we commonly call Minium, or Red Lead, is a preparation of lead, made by melting the metal in an unglazed earthen pan, and stirring it till it be reduced first to a blackish, then yellowish, and lastly to a very red powder, which is of some use in medicine, but of more in painting.

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The Elk

Yakim



over deep Snow



Deep Snow, in a Sledge drawn by a Rein Deer.

other parts of Europe, and abundantly in North America. This beast is like a mule in size and shape, but has a longer snout, a short tail, cloven feet, and two large branched horns growing backwards, (the female as well as the male), which weigh frequently three and sometimes four hundred pounds. Its hair is brown, and about the length of that of a goat; its ears nine inches long, but its tail not above two inches; its neck short and thick; its skin strong and hard, though thin; and its flesh very delicate food, especially that of the female. The ligaments of its joints are exceeding strong, which has perhaps been the occasion of some authors reporting that it has no joints in its legs at all; but this is a great mistake. It does not run, but its trot is almost equal to the swiftest running of a deer; and it is said to kick with such force, that the blows will break trees of a considerable thickness.—The elk (they tell us) is much subject to the epilepsy, and it having been observed, that the animal frequently scratches its head with his hind feet, it has been whimsically apprehended to be done as a remedy for that distemper. Hence the hoof of the elk has acquired a reputation as a specifick against epileptic disorders, either taken internally or externally applied, and it is accordingly sold in the shops; but there is great reason to believe that its virtue is only imaginary*.

THE Rein-Deer of Lapland are of wonderful service to the inhabitants of that country, who

* Ancient authors relate, that the northern people catch the elk by watching the opportunity when it falls down of the epilepsy, and laying hold of it before it recovers strength enough to put its left hind foot in its left ear, which cures it immediately; and it is that particular hoof, forsooth, which is the applauded remedy for the falling sickness.

bring

bring them up to be tame and tractable, feed upon their milk and flesh, make cloaths of their skins, and use them to draw sledges, in which they travel over the snow with prodigious swiftness. This creature is somewhat less than a stag, has two branched horns, and long rough hair under his neck. His colour inclines to an ash, but his haunches and his shoulders, and the parts under his belly are white. Their feet are thick, short, and cloven; and when they walk their joints make a sort of noise like the clashing of stones one against another. Their ordinary food is moss, and with this sustenance only they will perform journeys of eighty or a hundred miles a day.—The sledges in which the Laplanders are drawn by the rein-deer, are shaped like boats, only they are flatted behind, and not pointed, as they are before. The bottom of the sledge is convex, that it may slide with more ease over the snow; and the traces are fastened about the neck of the animal, going down his breast and between his legs. The reins are tied to his horns, whereby he is guided by the traveller, who by the motion of his body, and the help of his hand, takes care to balance the sledge, and prevents its overturning, of which it is often in danger by reason of the roundness of its bottom. They hang bells to the trappings of the rein-deer, with which those animals are much delighted.—When the Laplanders go a hunting, they use a sort of skates, which are flat boards, four or five feet long, pointed at each end, and turned upwards before; and having a long pole in their hands, with a piece of board fastened to the end of it, that it may not sink too deep into the snow, they run over it with great swiftness, so as to go fifty or sixty miles a day without much fatigue.

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THE Sable Mice of Lapland, which are the same with those called Norway Mice by Olaus Wormius, deserve the attention of the curious; but of these we have given a particular description, they being the same with the lemming mentioned in Vol. II. page 248, 249.

INHABITANTS OF LAPLAND.

BEFORE we take leave of Lapland, it may not be amiss to give some account of its inhabitants, as they are in many respects a very remarkable people, and far different in their manners and customs from other nations of Europe. With respect to their stature, they are the shortest men in all the north, being seldom above four foot and a half high, and some of them even under that size. Their aspect is generally homely, having a large head, hollow eyes, a broad face, a flat nose, and short black hair. They have broad breasts, slender waists, and small legs, but are very strong, swift, and nimble. The women are somewhat handsomer than the men, having black eyes, and a complexion mixed with a natural red and white, which is not disagreeable. They are superstitious, timorous, and passionate, and have only confused notions of christianity; but they are charitable and hospitable to strangers. Hunting and fishing are their chief and almost only employments.

THE flesh of the rein-deer, their milk, the cheese they make of it, and the fish they take in their seas, lakes, and rivers, are the principal part of their food. Brandy, and other spirituous liquors, they are very fond of; but their usual drink is water, of which they have a kettle always over the fire in winter; and they also drink the
broth

broth of fish and flesh boiled together. In summer they wear a close garment made of coarse wool, of a light-grey colour without dying, which reaches down to the middle of their legs; and round them they wear a belt or girdle, at which hangs a knife, and a pouch, wherein they keep their flint, matches, tobacco, &c. Their winter-cloaths are the skins of rein-deer with the hair inwards, of which they also make shoes, boots, caps, and gloves; and the nerves of the animal serve them for thread. The women's apparel is not much different from that of the men; but they have more trinkets hanging to their girdles, such as chains, rings, knives, a needle-case, &c. weighing sometimes twenty pounds.

THE habitations of the Laplanders are rather huts than houses, consisting of pieces of timber or rafters joined together, and covered with turf or the branches and bark of pine-trees. They have no chimneys but a hole at the top of the hut, which serves to let out the smoke, and to admit the light. In some parts of the country they build their store-houses on trees, to secure their provisions from bears and other wild beasts.

THE Laplanders, in hunting, make use of bows about three yards long, in handling of which they are very dextrous, being trained up to it from their infancy; insomuch that some of them will shoot an arrow into a circle no bigger than a farthing, at such a distance as they can but just discern it. For the larger sorts of beasts they sometimes use fire-arms and spears, or dig pits for them to fall into; others they take in traps, catch them with dogs, or kill them with poisonous baits. They account the flesh of the bear a great rarity; and he that kills one is distinguished

tinguished by laces round his cap wrought with tin-wire, on which occasion they make great feasting.

WHEN a Laplander has a mind to marry, he looks out for a young woman possessed of a great many rein-deer, in which the riches of these people chiefly consist; and it is the custom for parents to give their children some rein-deer as soon as they are born, which, with all their increase, belong to them ever after. The more of these animals a maid has, the sooner she may expect a husband, for the Laplanders do not much regard beauty or other qualifications. As to the poorer sort, they are content to marry a man's daughter who lives in a convenient place for fishing and hunting.——When the suiter goes to pay his first visit to the woman he intends to marry, he is accompanied by some of his friends, one of whom is to negotiate the matter, and carries with him some bottles of good brandy or other spirituous liquor. Being arrived at the hut, they are all invited in except the suiter, who stays without for some time, till the company have drank round, and his friend has made the proposal to the young woman's parents. The man is then called in, and takes a dram or two with the company, but without seeing the girl, who in the mean time is sent abroad. If the father consents that the young man may pay his respects to his daughter, he goes out of the hut to his sledge, puts on his best apparel, and returns to salute his mistress with a kiss; after which he makes her a present of a rein-deer's tongue, and some other trifles, which she refuses to receive in the presence of her relations; but going out of the hut with him, she accepts them. The lover then desires her to let him sleep near her in the

the hut, which if she grants, the marriage is at good as concluded; if not, she throws the presents on the ground, as a mark of her refusal. After marriage the bridegroom is obliged to serve his father-in-law a year, before he takes away his wife and her patrimony of rein-deer, at which time all the friends make presents to the new-married couple.

SOON after a child is born, they wash it with snow or cold water, and then wrap it up in the skin of a hare. The women do not keep their bed above four or five days, and as soon as they have recovered strength, they set out with the child at their backs to have it baptized, for which purpose they are often obliged to take long journeys. Their cradles are made of a piece of hollow timber, like a small boat; in which the child is laid upon a kind of soft fine moss, and covered over with the tender skin of a young rein-deer. The cradle is suspended by a rope from the roof of the hut, and by tossing it to and fro they lull the child to sleep.

THE Laplanders have no physicians amongst them, nor indeed have they much occasion for any, as they are very seldom afflicted with sickness. For the cure of all inward distempers they make a drink of a certain moss which they call Jerth, or instead of that chew the root of angelica, or boil it in rein-deer's milk. When they feel a pain in any part of their body, they take a kind of fungus or mushroom growing upon the birch-tree, and, having set fire to it, they apply it burning hot to the part affected; and this occasions a blister, which they imagine draws off all the bad humours. For wounds they have no other remedy but the resin that oozes from the fir-tree; and when they have any member frozen, they

they run a red-hot iron into a cheese made of reindeer's milk, and with the fat that drops from it anoint the part, which by that means is almost instantly cured.

As to their funerals, if a deceased Laplander was rich, his corpse is wrapped in linen; but if he was poor, he has only a woollen shroud. They put into the coffin along with the deceased a flint and steel and a hatchet, which they imagine he may have occasion for in his journey to a place of rest. But this is only the practice of those who are still Heathens, or have very gross notions of the Christian profession. The corpse is drawn in a sledge by a rein-deer to the place of burial, after which the creature is killed to make a funeral entertainment, to which all the friends and relations of the deceased are invited.

MANY stories are told of the wizards or conjurers of Lapland, who pretend to foretel future events, and are thought to have a power of inflicting diseases on whom they have a mind, on which account they are held in great veneration by the poor ignorant Laplanders, who take all imaginary care to avoid their anger: but stories of this kind are neither to our purpose, nor worth repeating; and therefore we proceed to consider some of the buildings of Sweden, with which article we shall conclude this chapter.

BUILDINGS.

IN this northern country we find but few buildings that are so elegant or magnificent as to deserve particular notice. Several of the churches in Stockholm are very large and handsome structures, but that of St. Nicholas is both the largest and most magnificent, it being supported by
marble

marble pillars, and covered with copper. It is also adorned with a great number of tombs of different kinds of marble. The statue of St. George on horseback, killing the dragon, is much admired. This is the fabulous history of his delivering Cleodolinda, the daughter of the king of Lydia, and twelve other virgins, from the fury of the dragon; and that princess is seen kneeling with her hands lifted up. Over the altar is a cabinet finely gilt, on which is a table of a pyramidal form, with shelves of massy silver, adorned with the following histories in basso relievo: on the first is the nativity of Christ; on the second, his last supper; on the third his crucifixion; on the fourth is his burial; and on the fifth his resurrection. These are all of silver; and on the top is a statue, about two feet high, of the same metal, representing the ascension. About the altar are other silver statues of the same height, as that of Moses, with the two tables of the law; John the baptist; and the evangelists, with the animals usually assigned them, by painters and statuaries; all of them weighing together about thirty thousand ounces. On the right side of the altar is a large picture of heaven and hell, which reaches from the roof to the floor; and on the left side, is painted the crucifixion.

THE cathedral of Upsal is esteemed one of the finest churches in the kingdom; it has been five times destroyed by fire; the last time was in 1702; but it has since been rebuilt with great magnificence, and is adorned with stately monuments of some of the kings of Sweden.

THE cathedral of Lunden is a magnificent structure, and has a very lofty spire, which serves as a mark for sailors, it being seen at a great distance.

THE

The altar of this church is a beautiful piece of work; but what most engages the attention of a stranger is its curious clock, which for the number of its movements and figures may vie with those of Lyons and Strasburg. Every hour two horsemen come out and encounter, and a door opens, which discovers the virgin Mary sitting on a throne with Christ in her arms, and the Magi with their retinue marching in order and presenting their gifts, two trumpeters sounding all the time of the procession. This clock, besides the hour, shews the month and day, and every festival throughout the year: but however ingenious the mechanism of these celebrated clocks may be, we are inclined to think, that pieces of clock-work equally curious and wonderful, if not more so, have lately been made in England.

As Sweden affords us so little that is remarkable under this head, we shall detain the reader no longer in that country, but conduct him across the Baltic into the kingdom of Poland.

CHAP. X. Of POLAND.

F O S S I L S.

THIS country is of great extent, and the soil is generally fertile, fit for tillage and pasture, so that it produces abundance of corn, and feeds vast numbers of cattle. It is rather flat than mountainous, except on the side of Hungary, from which it is separated by a long chain of crag-

gy hills, called the Crapack or Carpathian mountains. Some of its mountains afford mines of silver, copper, lead, and iron; but the most considerable of all are the salt mines in the Lesser Poland, which are the chief riches of the country, and make one of the best branches of the king's revenue. These mines are near a little town called Wilizka, a few leagues from Cracow, and have now been opened above five hundred years, being first discover'd in 1251. There are several descents into them, the two principal whereof are in the town itself, through which the salt is drawn up; the rest serve to let down timber and other necessaries. Above ground there is a large wheel, turned round by a horse, with a strong rope as thick as a man's arm; to this is fastened another rope, which a man ties round him in such a manner as to sit in it, and take another person in his lap; whereupon the large rope being let down a little way, a second rope is fastened to it, on which another man seats himself, taking likewise one in his lap; and he being lowered a little, gives place for others to succeed him. Thus thirty, forty, or more, are let down at a time to the depth of a hundred fathoms, where they come to ladders, by which they descend a hundred fathoms lower, the earth in the several passages being supported with strong timber. Here a stranger is surprized to find a kind of subterraneous commonwealth, consisting of a great many families, having their peculiar laws and polity, and even publick roads and carriages, horses being employed to draw the salt to the mouths of the mine, where it is taken up by engines. These horses, when once they are down, never see the light again; and indeed many of the people seem to be buried alive in

in this strange abyfs, fome being born there and never stirring out, though others have frequent opportunities of breathing the village air, and enjoying the light of the fun. It alfo raifes a travellers admiration, to behold in this capacious mine a long feries of lofty vaults, fufained by huge pillars of rock-falt cut with the chiffel, which, by the light of flambeaux inceffantly burning, appear like fo many cryftals or precious ftones of various colours, cafting a luftre which the eye can hardly endure. The fubterraneous paffages or gallerics are very fpacious, and in many of them are chapels hewn out of the rock-falt; and in thefe are fet up crucifixes and the images of faints, before which a light is kept constantly burning. The places where the falt is hewn out, and the empty cavities whence it has been formerly taken, are called chambers; and fome of thefe are fo fpacious, that a large church might be inclofed in one of them. Several of thefe chambers are made ufe of, as warehoufes for the falt-casks, or barns for holding the fodder for the horfes, while others ferve for ftables. In fome chambers, where water has formerly ftagnated, the bottoms and fides are covered with incruftations of fome thoufands of falt cryftals, one upon another, many of them weighing half a pound or more; and when any candles happen to be brought, the numerous rays of light reflected by thefe cryftals, emit a furprizing luftre. The falt is hewn out of the mine in large cylindrical pieces, the workmen uſing hammers, pick-axes, and chiffels, much as in our ftone quarries; which pieces, when drawn up to the top, are broken into fragments fit to be thrown into the mill, where they are ground into a coarſe ſort of powder, ſerving all the purpoſes of our common falt. However, it is proper to obſerve, that the

salt dug here is of three kinds, the first a coarse blackish salt, the second a little finer and whiter, the third very white and clear as chrystal, which is properly the *Sal Gemmæ* of the Druggists, and is frequently used for toys, chaplets, little vases, &c.—But we must not forget to mention one of the greatest wonders of this salt-mine, which is a rivulet of fresh water running through it, sufficient to supply all the occasions of its inhabitants, who are not less than a thousand people.

THAT beautiful transparent substance called Amber is found plentifully on the coasts of Prussia*, concerning the nature and origin whereof there has been a vast diversity of opinions, some referring it to the mineral, others to the vegetable, and others to the animal kingdom†. There is, however, little doubt to be made, but that it is

* Amber is found in several parts of Europe, but no where in such abundance as in Prussia, both dug out of the earth and fished out of the Baltic sea: The coasts of Pomerania, Samogitia, Courland, and Livonia, afford it in considerable quantities; and it has been often dug up in Denmark. It is met with in some parts of France and Italy, nor is our own country without it; for Dr. Woodward mentions several places where it is found in England, and Mr. Hill tells us he has picked up some fine and beautiful pieces on the Yorkshire coast. The neighbourhood of London also affords some that is tolerably fine, as the last mentioned gentleman observes, who has had a piece of Amber wrought, and wears it in the head of a cane, near three inches long, which he found in the great tile-clay pit behind St. George's Hospital at Hyde-Park-Corner.

† Pliny describes Amber as a resinous juice, oozing from aged pines and firs, and thence carried into the sea, where it undergoes a change, and is then thrown again upon the shore. The opinion of this ancient naturalist has been espoused by many of the modern ones, some of whom to this day suppose Amber to be a vegetable resin. Others have imagined it a concretion of the tears of birds, others the urine of a beast, &c. but we make no scruple to join with those who look upon it as belonging to the mineral class of bodies, and accordingly speak of it under the head of Fossils.

wholly

wholly of mineral origin, and is a bitumen once liquid, much like Naphtha or Petroleum, hardened and brought into its present state by a mineral acid of the nature of the spirit of sulphur or oil of vitriol, both these substances abounding in the earth, and an artificial mixture of them producing a body very much resembling the native Amber. This fossil is of a fine, uniform, and regular texture, very light, yet heavy enough to sink in water, is naturally of a rough surface, yields a fragrant smell when rubbed, and is endued with the property of attracting light bodies, which from its name (Electrum) is called Electricity. It is found in various shapes and sizes, but its most usual standard is between half an inch and three inches in diameter. Its natural colour is a very beautiful pale yellow, but it is subject to be altered from this by heterogeneous mixtures of metalline or earthy particles, received into it while not yet perfectly hardened. Hence it is sometimes white, sometimes brown, and sometimes even black and opaque, in which last state it is preferable to the finest jet, though some say there is no such thing as black Amber; and sometimes, but rarely, it is found tinged with a reddish or greenish cast, and yet as pellucid as the common Amber. It is considerably hard, breaks with a smooth surface, and even in the largest pieces is very transparent.

IN Prussia, where vast quantities of amber are dug out of the earth, it lies usually below five strata in the following order. The uppermost is a coarse yellow sand; the second a whitish clay; the third a blue clay; the fourth a substance resembling wood, but made up of several flakes lying over one another; the fifth a stratum of the pyrites, or a kind of vitriolic ore; and the sixth another of yellow sand, amongst which the Amber lies,

lies, and is extracted with convenient instruments. Besides this, there is plenty of Amber found in the Baltic sea, which the country people take up with nets, and this is called fished or draught Amber; what is gathered on the shore from among the weeds and sand being distinguished by the name of Picked Amber, and what is dug out of the earth by that of Fossil Amber. These however are not three distinct species of Amber, but undoubtedly formed in the same manner; that found in the sea or thrown upon the shore being probably carried thither by the rivers, or washed by the waves in tempestuous weather from amongst the rocks, and those subterraneous places where Amber is produced and nourished.

NATURE seems to have been very curious in the formation of Amber, the lumps of it being frequently shaped like pears, almonds, pease, &c. and the several figures and representations observed in some pieces of Amber are also surprizing: but what is most wonderful, and difficult to account for, are the several animals, leaves, &c. which are sometimes found buried in this fossil. M. Hartman, who has given us a history of the Prussian Amber, reckoned above thirty species of insects inclosed in pieces he was possessed of, as flies, spiders, ants, bees, beetles, &c. and some authors mention frogs, lizards, and small fishes inclosed in Amber, but the truth of this may be suspected*.

How

* It is certain, some artists have a method of inclosing these animals in Amber; to distinguish which from those that are so entombed by nature, we may observe, that in the former the insect is not far from the surface, but in the latter it is in the center; for the Amber-polishers could not so well conceal their art, if they put their animals in the superficial parts of the Amber, where the transparency would the more readily discover the cheat. If the Amber wherein animals

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How these animals come to be immerced in Amber, is a question much agitated amongst the curious enquirers into the works of nature. Some have endeavoured to account for it by supposing Amber to have been of vegetable origin, as if animals could more easily be entangled in the resinous and gummy juices of trees; but this is not supported by experience, for insects are seldom or never found inclosed in such juices, but only adhering externally to their surface. Others again have denied them to be real insects, but any one may be satisfied of the contrary by viewing such a piece of Amber when cut or broken, for evident traces of the little animals still remain.—Insects thus found in Amber are indeed an unquestionable proof of its having been once in a liquid state, and the better to understand how they came to be inclosed in it, we need only reflect, (says M. Hartman) that it is usual for them in rigorous seasons to seek for shelter and sleep in caverns, where they are covered and buried in the bituminous matter which afterwards hardens into Amber. And on this occasion we are to consider that all the pieces of Amber which contain flies, and other insects, are of that kind which is picked up on the seashore; very few accounts that can be depended upon having yet been given of any dug out of the earth with such animals inclosed. Now as the native liquid bitumens are continually trickling down the outsides of rocks and hills, and as some of this matter may be lodged in small cavities, or otherwise are inclosed be solid, clear, free from cracks, and without a contexture of different crusts, it is a sure sign of its being artificial; for the parts of Amber, wherein insects are naturally repositied, (as M. Hartman a thousand times observed) either cohere like bark, or are intersected every way with fissures, in which some parts of the animal appear externally.

detained on the surface of the earth, where it may leisurely be changed into Amber, it is not much to be wondered at, if flies and such-like insects are sometimes inclosed and bedded in a fossil formed after that manner.

THE people who live on the Prussian coast, and in other places where Amber is produced, observe, that ravens, crows, asses, sheep, and several other animals are extremely fond of it; and that pieces of it are frequently found in their excrements, and in their bodics when opened. It is in considerable repute for its medicinal virtues, being used in fumigations to remove defluxions, and its fumes received at the mouth are often successful in the beginning of a quinsy. In the time of the plague, those who work in Amber at Koningsberg are said never to be infected; whence it is looked upon as a preservative against contagion: and taken in powder it is diuretic, expels gravel, and promotes the menses.

As to the electricity of Amber, or its power of attracting straws, paper, and other light bodies, it is really very surprizing; but the same property is also found in jet, glass, sealing-wax, most kinds of precious stones, and in all resinous and bituminous substances*. This species of attraction differs from magnetism in this, that the latter only attracts iron or steel, whereas electricity attracts most sorts of bodies indifferently, though the effect be only sensible in light ones. From the ex-

* Some distinguish electricity into two kinds, namely, vitreous electricity, or that which belongs to glass; and resinous electricity, or that which belongs to amber, rosin, wax, gums, and such-like substances. That they are different kinds seems evident from their contrary effects; for the light bodies repelled by one will be attracted by the other, which cannot happen when both bodies have the same attractive power.

periments made by divers philosophers to determine the nature and laws of electricity, it appears,

1. That electrical bodies do not attract at all, or very rarely, except they be warmed by attrition, and thereby disposed to emit their effluvia more copiously. 2. These bodies when warmed by fire do not attract so forcibly as when heated by rubbing; but if they be first warmed by fire, and then rubbed, they attract the more strongly. 3. The interposition of the finest linen, as muslin, or the like, will totally hinder the operation of electrical bodies, tho' the virtue penetrates the pores of glass. 4. The sphere or extent of this attracting power varies with the state of the weather, the attraction being stronger in hot and dry weather than it is in cold and moist. 5. This virtue may be communicated to the distance of seven or eight hundred yards by the intervention of a proper body, as hempen strings, &c. Electrical bodies sometimes alternately attract and repel others to a considerable distance, and with great velocity; but in some cases the body once repelled will not be again attracted till it has first touched some other body. 7. If the sphere of attraction be interrupted in any part, it destroys the efficacy of the whole. 8. This virtue will exert itself in vacuo, but not so strongly as in the open air. 9. It may be excited to such a degree as to appear lucid, and sparkle like fire in a dark room. 10. It may also plainly be felt on the face or finger, striking against it like a puff of wind; and it is sensible to the ear by a crackling noise, like that of burning charcoal.—These and several other wonderful phenomena of electricity have been discovered by the experiments of Mr. Boyle, Mr. Hawksbee, Mr. Gray, the Abbé Nollet, and other virtuosi, which have of late been

publickly shewn in divers parts of England with an Apparatus contrived for that purpose *.

WE have dwelt the longer on this subject, as it is one of the most curious in natural history and philosophy, and the most entertaining we shall meet with in Poland. The vegetables of this country are too common to require a description; nor shall we have much to say under the article of animals.

A N I M A L S.

THE woods and forests of Poland abound with hares, deer, foxes, bears, wolves, and boars; and they have also plenty of elks, wild asses, wild bulls or Uri, and buffaloes, whose flesh the Poles reckon a great dainty. In the Ukrain they have likewise wild horses, whose flesh is equally esteemed. The wolf resembling a hart, or the European lynx, called by the natives Ris, with spots on its belly and legs, yields the best furr of any animal in Poland, though there are several others which are hunted and killed for the sake of their skins only. In Podolia there is a sort of quails that have green legs; but their flesh is reckoned unwholesome, and said to give people the cramp if too frequently or immoderately eaten.

THEIR method of hunting and taking the wild

* Mr. Martin observes, that the uses of this wondrous virtue of electricity has not yet been discovered; but Mr. Gray, a little before his death, hit upon an experiment which seemed to indicate, that the attractive power which regulates the motions of the heavenly bodies, is of the electric kind. The experiment was this: He fixed a large iron ball upon a great cake of rosin and wax, and exciting the virtue strongly in the cake, a fine feather suspended by a thread, and held near the iron ball, was carried round it by the effluvia in a circular manner, and performed several revolutions. It moved from west to east, as the planets do; and its motions, like theirs, was not quite circular, but a little elliptical.

bulls

bulls is as follows: A great number of horsemen surround the bull, one of whom rides up and throws a dart at him, upon which the enraged animal pursues his enemy, but being wounded by another behind, he faces about to pursue the latter; and thus by turns they so harass him, that being quite tired with defending himself against so many assailants, he falls down, and is easily taken. Another way of taking these beasts is by felling a great many trees, and thereby inclosing them so that they cannot easily escape. When a bull is thus surrounded, each hunter having his proper post throws darts at him, and whilst the bull runs towards one of them, another from behind gives him a mortal wound. If he chance to break through the inclosure, and any of the hunters are in danger, the man he runs at holds out a piece of red cloth, against which the beast having an antipathy, he immediately leaves that person, and makes towards another, who, being provided for him, commonly kills or disables him.—Bears, and those of the largest size, they frequently take alive with nets; in which one of them being entangled, the sportsmen ride up to him, pin down his head and feet with great wooden forks, and bind him so fast with strong cords that he is not able to stir, but the knots are so contrived that with one pull they may be untied. Having thus secured the bear, they put him into a great wooden chest, where they keep him, and turn him loose when they have a mind to have the diversion of hunting.

We now proceed to give some account of the buildings of this country.

BUILDINGS.

MOST travellers inform us, that many of the churches and other public structures in

Poland are very beautiful and magnificent, but in the descriptions of them they are not so particular as might be expected. In Warsaw, the capital of the kingdom, the principal church, dedicated to St. John the Baptist, is a noble fabric and richly adorned; besides which there are several others worth observation. The palace in that city, where the kings of Poland usually reside, and the general dyet of the kingdom assembles, is a large square pile of buildings, begun by Sigismund III. and enlarged and beautified by his successors. The king has another palace in the suburbs, amidst delightful groves and gardens; and not far from it there is a small chapel erected in memory of a victory gained over the Muscovites, in which there is a fine sepulchral monument of Demetrius Suiseus, great duke of Muscovy, who being taken prisoner, died a captive in Poland.

IN the city of Cracow there are several magnificent structures, and particularly the castle, which is a mile in compass, wherein the king has a noble palace built of stone, having a square court within it, and galleries running round the outside supported by marble pillars. The royal apartments are adorned with fine paintings and statues, and from the north gallery there is a charming prospect over the neighbouring country. Within this castle stands the cathedral dedicated to St. Stanislaus, a majestic structure, wherein the kings of Poland are crowned and usually interred, and where are preserved the relicks of that saint, the ancient bishop and patron of the nation; who being murdered in this church in the eleventh century by Boleslaus the Bold, the king and nobles walk in procession to his shrine the day before the coronation, to expiate the crime; and several kings have offered vessels of gold and silver at his tomb.

tomb. Sigismund I. built a silver altar over it, with golden crucifixes; and to the priests who serve at it he gave many rich vestments embroidered with jewels.

THE cathedral of Gnesna, formerly the metropolis of the kingdom, and now the see of an archbishop who is primate of all Poland, is a fine ancient fabric, and is remarkable for its gates of Corinthian brass exquisitely wrought, which, it is said, belonged formerly to a Greek monastery in the Morea, and were brought from thence by king Boleslaus the Second. In this church there is a vast treasure of gold, silver, and curious enamelled vessels, given to it by several kings and archbishops. The tomb of one of its prelates, viz. St. Adelbert, was cased with silver by Sigismund the Third; and archbishop Firley added to its treasure many costly vessels and vestments, particularly his own mitre, valued at two thousand pounds sterling.

THE city of Posnania or Posnan, which lies west from Gnesna, has also a stately cathedral, richly adorned, where they shew the tomb of duke Mieceslaus, who introduced christianity into Poland. It has likewise several other handsome churches, and a large town-house of excellent architecture; but no building of that kind in the kingdom is equal to the town-house of Thorn, which is reckoned one of the finest in Europe.

WE shall conclude with Dantzick, the capital of Polish Prussia, and a city of very great trade, which is adorned with many noble structures, particularly St. Mary's church, which is remarkably grand and beautiful. It has several thousand windows, forty-eight altars, and a font, made at Antwerp, which cost about five thousand pounds sterling. The town-house is also magnificent, and has a lofty spire; but this and other fine buildings were

were much damaged by the bombs and red-hot balls of the Russians, when they besieged Dantzick under count Munich in 1734, in order to drive out king Stanislaus and his adherents, who had taken shelter in that city.

Of the P O L E S.

THE Poles are generally pretty tall and lusty, have fair complexions, and light hair, which they cut short, but though they shave their beards, they leave two large whiskers. Their dress is pretty singular: they wear a vest, which reaches to the middle of the leg; and over it a kind of gown, lined with furs, and girded with a sash, though the sleeves fit as close to their arms as a waistcoat. Their shirt nearly resembles a woman's shift, it being without either a collar or wristbands; and they wear neither stock nor neckcloth. On their heads they wear a fur cap; as to their breeches, they are wide, and make but one piece with their stockings; and instead of shoes, they always wear Turkey leather boots, both at home and abroad, with thin soles, and deep iron heels, bent like a half-moon. They not only carry a sabre or cut-las by their sides, but also a pole-ax, and never put them off but when they go to bed. The sabre hangs in a leather strap, with their handkerchief, their knife in a sheath, and a small whetstone set in silver. When they appear on horseback, they wear over all a short cloak, commonly covered with furs, both within and without. The peasants usually wear a sheep's skin with the wool on for their winter dress; but in summer, a thick coarse cloth, and instead of boots, have buskins and shoes made of the bark of trees; but as to linnen they seldom wear any.

THE

THE habit of the women nearly resembles that of the men; only those of quality, dress after the French manner. The Polish ladies are amiable, sprightly, and fond of plays and music; they are generally modest, and are said to be so submissive to their husbands, as to ask them on their knees for what they want. Those who are very rich, seldom go to church, or to pay a visit, without their coach and six, a great number of servants, particularly an old gentleman for their usher, and an old gentlewoman for their governante, with a dwarf of both sexes to bear up their train, and if it be at night, the coach is surrounded with a multitude of flambeaux.

THE Poles have long been celebrated for their courage, their strength, and their longevity, which is justly ascribed to the temperature of the climate, their enuring themselves to manly exercises, and the continual use of the cold bath. The nobility are open, affable, liberal, and hospitable, polite to strangers, rigid to their dependants, punctilious in point of honour, vain, and ostentatious: they are constant in their friendship, bitter in their enmity, unsuspicious, and open to imposition. The nobility of high rank have even their horse and foot guards, which stand centry day and night at the gates of their houses, and in their anti-chambers; they also march before their master's coaches in the street. But these nobles never appear with such splendor, as at the general diet, where some have four or five hundred, and others a thousand guards to attend them. Indeed they want little to distinguish them from sovereigns in their respective districts, but the privilege of coining money. When they sit down to dinner or supper, they have their trumpets and other music playing. Though the nobility of Poland are all said to be equal, as
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having votes in the diet, yet wealth will ever create a distinction; and the nobles who are poor, are frequently obliged to serve those that are rich. Their patron indeed, usually treats them with civility, and permits the eldest to eat with him at his table, with his cap off; and every one of them is attended by a peasant boy, maintained by the master of the family; yet if any of these noble servants neglects his duty, so little regard is paid to his quality, that he is stripped naked and whipped; this however is reckoned no disgrace; but should a nobleman apply himself to trade, he would be degraded. Their ordinary food is beef or veal, mutton being little esteemed; they are generally admirers of pig and bacon, and have plenty of wild fowl and river fish. At an entertainment the Poles lay neither knives, forks, nor spoons, but every person brings them with them; and they no sooner sit down to table, than all the doors are shut, and not opened till the company return home. Those who are invited, bring their servants with them; and it is said not to be uncommon for a nobleman to give his servant part of his meat, which he eats as he stands behind him, and to let him drink out of the same cup with himself; but this is the less extraordinary, as these servants are esteemed his equals. Though there is usually great plenty of provisions, little is left for the rest of the family, it being seized by the servants of the visitors, who have a napkin, in order to carry off the sweatmeats for their ladies. After the cloth is taken away, the gentlemen usually sit down to drinking, and after the ladies are retired, smoke tobacco.

THE nobility of Poland enjoy many considerable privileges; and indeed the boasted Polish liberty is enjoyed by them alone; for they have the power
of

of life and death over their vassals, who on that account groan under an oppressive slavery. The house of a nobleman is a secure asylum for criminals, and none must presume to take them from thence by force. But if a nobleman be concerned in trade or commerce, he forfeits the privileges of a noble Pole.

No people can be reduced to a more abject state than the peasants of Poland; for if one lord kills the peasant of another, he is only obliged to make a reparation by another peasant equal in value. The peasants have no property, and all their acquisitions serve only to enrich the master. They are indispensably obliged to cultivate the earth; they are incapable of entering upon any condition of life, that might procure them freedom, without the permission of their lords; and are exposed to the caprice, cruelty, and barbarity of their tyrannical masters, who oppress them with impunity; and having the power of life and property in their hands, too often abuse it, in the most gross and wanton manner, their wives and daughters being frequently exposed to the most brutal treatment.

THIS, says the author of a late system of geography, is the boasted liberty of the Poles, in which the multitude are reduced to the most abject slavery; and those who enjoy estates, though ever so small, are allowed the privilege of being tyrants; and have greater power over their vassals, than God ever gave to kings. Happily those vassals scarce entertain any idea of better circumstances: they regard their masters as a superior order of beings; and as they seldom want for provisions, they think that a man can never be very wretched while he has any thing to eat. It is said that a total want of sentiment and mental enjoyments prevail through the whole order; as if Providence had

had wisely mixed the stupifying drop, to render more tolerable the nauseous draught of servitude.

THE political constitution of Poland is extremely singular, and bears no resemblance to that of any other government. The republic is composed of the king, the senate, and the nobility; the king being only a superior officer of the republic, with a very limited power.

CHAP. XI.

OF MUSCOVY, or the RUSSIAN *Empire.*

THIS vast empire, which is partly in Europe, and partly in Asia, is of an amazing extent, it being bounded on the north by the frozen ocean; on the east by what is generally called the northern part of the pacific ocean; and towards the west and south its limits are settled by treaties concluded with several far distant powers, with Sweden, the Poles, the Turks, the Persians, and the Chinese; by whose dominions this immense empire is bounded, and is of far greater extent than all the rest of Europe. Its length from the dominions of Sweden to its most eastern limits, contains near a hundred and seventy degrees; so that when it is noon-day in the west, it is near mid-night in the eastern part of this empire. In breadth it stretches from north to south eight hundred leagues. Hence both the soil and temperature of the air must be extremely various in different parts. In those which lie beyond the sixtieth degree of latitude, there are few places where corn will ripen; but in the middle of the empire, the soil produces most kind

kind of trees, and garden fruits, corn, and all the necessaries of life; and in the southern provinces, where the climate is hot, though there are many barren wastes, yet in many places, wine and silk might be produced in great plenty.

THIS immense empire is divided into Russia or Muscovy and Siberia, the former in Europe, and the latter in Asia, but both united; and both also thinly peopled. We shall begin with Russia. The boundaries of this part of the empire, are the same with the limits between Europe and Asia, it extending on the east to the Wercoturian mountains, and to part of the Wolga, which separate it from Siberia; on the south it is bounded by the river Don, and a line drawn from the Nieper to the mouth of the Don, at its entrance into the sea of Esoph; on the west by the Nieper, which separates it from Poland, the gulph of Riga, the gulph of Finland, Sweden, and Swedish Lapland; and on the north by the frozen ocean. Its principal river is the Wolga, which is one of the largest in the world, it running a course of above two thousand miles before it falls into the Caspian sea. The largest lake in this part of the Russian empire is that of Ladoga, being a hundred and fifty miles in length, and ninety in breadth.

SIBERIA, which lies to the east of Russia, is above two thousand miles in length, from east to west, and about seven hundred and fifty miles in breadth, from north to south; but is in most parts extremely cold and barren, and every where thinly peopled. The face of this country, especially towards the north, is as disagreeable as can be imagined, it being covered with large, and almost impenetrable woods, with high and frozen mountains, covered with everlasting snow, and with fens, lakes, and marshes. The climate is, however, more moderate

moderate in the southern part, and where the lands do not rise a considerable height above the level of the sea. Siberia has many animals unknown in Europe; and many different nations, that have different manners, customs, languages, and religions. It is chiefly inhabited by people of Tartarian race, intermixed with some colonies of Russians, and the descendants of such state prisoners, and others, as have been banished thither. But what is very extraordinary, more perfect accounts have been given of Kamtschatka, a great Peninsula, which forms its boundary on the north-east, than of those countries that are seated in the very heart of Siberia.

F O S S I L S.

SEVERAL parts of this great empire are well furnished with mines of iron, and particularly at Alonitz, near the lake Ladoga, they dig vast quantities of ore, which yields iron of such a temper, that it may be brought (they say) to be as durable as brass. The mines of Siberia likewise afford great plenty of excellent iron; and some mines of silver have lately been discovered in that country, from whence the Russians draw no inconsiderable treasure. They have also abundance of sulphur and salt-petre, with which they make their own gun-powder, and in time may probably export large quantities of it, having much more than sufficient for their own use: and perhaps they may shortly be in a capacity to furnish foreigners with fire-arms, as labour is cheap, and they have plenty of iron.

WE have already had occasion to take some notice of a species of Talc, the Lapis Specularis of the ancients, commonly known amongst us by the name of Muscovy-Glass, it being brought to us from

from that country, where it is found in great abundance*. It is a beautiful Fossil, of an equal, regular, and elegantly laminated structure; and is usually found in masses, ten or twelve inches in breadth, and from half an inch to three inches in thickness. These are of a smooth and even surface, except at their edges, where the joinings of the various and innumerable plates or flakes of which it is composed, make a multitude of thin ridges; which being separated by getting the edge of a knife between them, or other means, the mass readily splits, with proper care, into very thin laminæ, of an extraordinary brightness and transparency. Its colour is of a fine clear white, resembling that of the purest white glass; but there is another still more elegant species of this Fossil called Red Talc, found in Muscovy and Persia, and no where else so far as is yet known, which, though reddish in the masses, is seldom brought to us except in such thin plates as to have no remains of its colour distinguishable. The ancients (as we have observed) made windows of this pellucid stone, and at present it is used by the miniature painters to cover their pictures, the best sort of lanterns are made of it instead of horn, and minute objects are usually laid between two plates of it for examination by the microscope.

THE large teeth and bones dug up in Siberia, (commonly called Mammuth's bones) are one of the greatest curiosities of this country, and have employed the thoughts and pens of Sir Hans

* This Fossil is found in many parts of the world besides Russia, particularly in the island of Cyprus, where it lies in great quantities about four or five feet under the surface, almost throughout the whole island. We have it also from Africa and Arabia, and of late it has been discovered to abound in the Alps, the Apennines, and many of the mountains of Germany.

Sloane,

Sloane, Dr. Breynius, and other learned men, who make no doubt of their being the teeth and bones of elephants; and in reality these teeth or tusks, if not too much corrupted by lying in the ground, are sold and used as ivory all over Russia. In the British Museum is a tusk found under ground in Siberia, which is of a brownish colour, and hollow at the bottom like other elephants teeth, one of which it plainly appears to be. From the basis, measuring along the outer circumference to the small end, it is five feet seven inches long, and the inner circumference is four feet ten inches. Measuring from the inside of the basis, to the small end in a strait line, the distance is three feet ten inches and a half; and at the basis, where thickest, it is eighteen inches round, and six in diameter. This tusk weighs forty-two pounds; but we have credible accounts of some that have been three or four times that weight, and even of some *Dentes molares*, or grinders, weighing twenty or twenty-four pounds a-piece*.

LUDOLPHUS, in the appendix to his Russian grammar, mentions these teeth and bones among the minerals of Russia; and takes notice, that the natives believe them to be the teeth and bones of an animal living under ground, much larger than any that live upon the surface of the earth. He adds, however, that the more sensible among the Russians affirm them to be elephants teeth, brought thither at the time of the deluge; and he himself, upon examining a piece given him by one of his

* Here it is to be noted, that such teeth and bones, as we are speaking of, are likewise found in several other countries besides Siberia, as Poland, Germany, Italy, England, Ireland, &c. but less commonly than in Siberia, and not so well preserved, being more wasted and calcined (as is supposed) by the greater warmth of those climates.

friends, who had it from a Russian of quality lately returned from Siberia, found it to be real ivory.

THE account of these teeth given us by Mr. Ysbrand Ides, in his travels from Moscow to China, is very particular, the substance of which is as follows. Amongst the hills (says he) which are situated to the north-east of Makoffkoi, the Mammoth's teeth and legs are found, and more especially on the banks of the Jeniseea, Lena, and other rivers, quite to the frozen-sea. In the spring, when the ice of these rivers breaks, it is driven with such violence, as to undermine the banks, and occasion part of the adjacent hills to fall down; and thus they discover the teeth of these animals. A person, who used to go annually in search of these bones, accompanied our author to China, and told him for a certain truth, that he and his companions found the head of one of these creatures where such a piece of earth had fallen down, and that with difficulty they broke out the teeth, which grew out of the mouth like those of an elephant. They likewise took some bones of the head, which appeared reddish, as if stained with blood; and afterwards found the fore foot of the animal, the circumference of which was as large as the waist of an ordinary man.—There are different reports, (continues Mr. Ides) concerning this creature. The Tungusians, Ostiacks, and other heathens say, that the Mammoth lives continually under ground, and that they often see the earth heaved up when the beast is upon the march, which afterwards sinks down again, and makes a deep pit or cavity. They also believe, that if he comes so near the surface of the earth as to smell or discern the air, he immediately dies; which, (say they) is the reason that several of them are found dead on the high banks of the rivers, where they

they come out of the ground unawares. This is the opinion of the Pagans concerning the Mammoth; but the old Russians of Siberia believe, that there were elephants in that country before the deluge, when the climate was warmer, and that their drowned bodies were driven by the waters into subterraneous cavities, where they have ever since lain frozen, and so preserved from putrefaction. But there is no absolute necessity to suppose the climate of Siberia was warmer before the flood, since the carcasses of drowned elephants might float thither from distant countries.—Some of these teeth are quite black and broken, but those which are found are as good as ivory, and are accordingly sent to all parts of Muscovy.

THIS account is confirmed by Mr. Laurence Lang, in the journal of his travels to China, whither he went in 1715 with dispatches from his Czarish majesty. He takes notice of these bones, as being found about the river Jeniscea, and towards Mangasea; along the banks, and in the pits occasioned by the sinking of the earth. He calls them Maman bones, and informs us, that some of the inhabitants are of opinion they are no real bones, but a sort of fossil horn which the ground produces; and that others will have them to be the bones of the Behemoth mentioned in the book of Job, the description whereof they pretend is suitable to the nature of the Maman; those words in particular, that he is caught with his own eyes, (as some render the passage) agreeing with the Siberian tradition, that the beast dies upon coming to light.

To these accounts we shall only add another given by Basilius Tatischow, director general of the mines in Siberia, in a letter to the bishop of Gotten-

Gottenburg*; wherein he mentions a large horn, (as he calls it) or tooth, weighing 183 pounds, which he had made a present of to his Czarish majesty, and another which he presented to the imperial academy at Petersburg. He had likewise another, larger than either of the former, which he caused to be cut, and he himself wrought several pieces of it, the ivory being very good. Part of the skull was corrupted by having lain in the ground, and was so large, that it seemed to him to be of the same size with that of a large elephant. He had also in his possession a grinder ten inches long and six inches broad, besides several ribs, shank-bones, &c. found from time to time in that country. The same gentleman took no small pains to enquire into those pits and hollows, which the Pagan inhabitants of Siberia pretend are made by these animals when they walk under ground; and he found they were nothing but caverns, such as are common in other mountainous countries, and are made by subterraneous rivers and cataracts, which sometimes undermine the places through which they pass, so as to make the ground above them sink in, and form great cavities.—Upon the whole Sir Hans Sloane concludes, that though the author has left the grand question about the origin of these bones undetermined, yet his observations seem to tend very much towards establishing the opinion above mentioned, that they are the bones and tusks of elephants drowned in the universal deluge.

VEGETABLES.

THE most remarkable production of this kind, in the Russian empire (if the accounts we

* This letter was published in the *Acta Liter. Sueciae*, 1725.
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haye is true) is a sort of Melon growing near Astracan, Casan, Samara, and other places on the river Wolga, called Borometz by the natives, and by Naturalists the Scythian or Tartarian Lamb, as very much resembling that animal. This is reckoned a Zoophyte, or Animal-Plant, being supposed to partake both of a sensitive and vegetable nature. It is shaped like a lamb, having several footstalks instead of legs, and is said to consume all the grass and herbs round about it, after which it pines and dies away. The skin of the body is covered with a substance exactly like wool, short and curling, and being dressed as tanners usually do the fleshy side of lamb-skins, without taking off the wool, it is used by people of fashion instead of other furs to line their garments. Scalliger mentions another particular concerning it, that no beast of prey will feed upon it except the wolf, and that it is used as a bait to catch that animal.

OLEARIUS tells us, he was shewn a piece of this skin, covered with a soft curled wool like that of a young lamb, which the people swore was taken from the vegetable we have just described; but he could hardly believe them. Nor is Olearius the only one who has questioned the truth of this story; for Deusingius, who very carefully examined the matter, suspects the whole to be fabulous; and Dr. Breynius is of the same opinion. Nay farther, that learned Naturalist, Dr. Kempfer, though he diligently enquired for this vegetable lamb in the country where it is supposed to grow, found nothing like it; for neither the common people in Tartary, nor those who were skilled in botany, knew any thing of such a plant; nor is there any thing in that country called Borometz except real sheep; and therefore

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he positively asserts, that whatever is said about this vegetable is mere fiction. The Doctor seems also to have discovered the origin of the fiction; for he observes, that in some provinces about the Caspian sea, there is a kind of sheep different in several respects from the common sort, particularly in the fineness of their furs, which he describes, and shews how they are prepared for adorning the cloaths of the Tartars and Persians. Now the rich and noble, (says the Doctor) who are ambitious of being clothed finer than the common sort of people, are fond of the furs of young lambs, which are much more tender than those of the old sheep, and the younger they are, the dearer; for their wool will bear a fine and close curl, which makes the fur more beautiful and valuable. Hence it comes, that they often rip up the dam and take out the Fœtus, only for the sake of the fur, which when duly prepared is of so delicate a grain, that after cutting off the extremities it scarce resembles a lamb-skin, and might easily deceive the ignorant, who would be apt to take it for the downy skin of a gourd. With this they line their turbans, and frequently use it by way of ornament on the borders of their garments. And hence the Doctor imagines the story of the Tartarian Lamb had its rise, the fur of the animal being transformed into a plant, either through the ignorance or misapprehension of those who first gave an account of it, or the false conjecture of some philosopher.—Be this as it will, we shall leave the Subject, and proceed to matters that are not disputed.

THE following vegetables grow chiefly in Kamptschatka: the Shelmina, which has a blackish root, white within, from which rise two or three stalks, of about the height of a man; the

leaves grow on long branches all over the stalk, having their upper part green and smooth, but underneath they are rough, and have reddish veins. At the top of the plant is a flower, which is like that of the service tree: but though the root, stalk, and leaves are very astringent, both the Russians and Kamptschadales eat them in the spring, and preserve the roots for the winter, when they pound and boil them with water, so as to make a kind of gruel, the root resembling in taste the Pistachio nut.

THE Cotconia grows in great plenty on the banks of the rivers, and has a root of the thickness of ones finger, black on the outside, and white within, from which two or more stalks rise, of the thickness of a goose quill, and about ten inches high. On the top, three oval leaves spread like a star, from the center of which rises a short stalk, which supports a white flower. The fruit, when ripe, is soft, fleshy, as big as a walnut, and of an agreeable taste, like a good apple: but it must be eaten as soon as gathered, for it spoils if kept only one night. The root is eaten by the Kamptschadales, both fresh and dried, with caviare.

ANOTHER remarkable plant has leaves like the hemp, but the flowers resemble those of the ragwort. The leaves being dried, and boiled with fish, give the broth the same taste, as if the flesh of the wild goat had been boiled in it: they fry the root in the fat of seals, and esteem it very delicate food.

WE ought not to omit the Zgate, which contains a poison of prodigious strength; for with the juice squeezed from the root, they anoint the points of their darts and arrows, which renders the wounds they give incurable, unless the poison

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be immediately sucked out : for if this be neglected, the wound turns blue and swells, and the patient dies within two days. Whales of the largest size, on being slightly wounded with a poisonous weapon, are unable to bear the sea; but soon throw themselves on shore, where they expire in great agonies, bellowing most terribly.

ANIMALS.

THE Russian empire, and particularly Siberia, abounds with variety of animals, such as foxes, sables, ermines, lynxes, beavers, &c. whose furs are in great request, and make a considerable article in their commerce. The Beaver, or Castor, is an amphibious animal, about three foot long, and twelve or fifteen inches broad in the chest and haunches. In the northern regions, the beavers are usually black or brown, but their colour is lighter in more temperate climates. Their ears are small, their teeth strong and sharp, and they have a long scaly tail, which is flat like the blade of an oar, and serves them as a rudder to steer by, especially when they swim under water. Their fore feet resemble those of apes or squirrels, which they use, like those creatures, as hands when they eat; but their hind feet are adapted for swimming, having membranes between the toes, like ducks and other water-fowl. The skin of the beaver is covered with two sorts of hair, the one long, the other a soft down, very fine and compact. An attempt was made at Paris in the last century, to manufacture this down, mixed with wool, into cloths, flannels, stockings, &c. but the project did not answer expectation; it being found by experience that the stuffs lost their dye when wet, and when dry again became harsh

and stiff as felts; so that the beaver is now chiefly used in making hats, or as a fur for warmth or ornament.

THE beaver has near its anus two bags or purses, containing a liquid matter called Castoreum, of considerable use in medicine. These bags are about the bigness of a goose-egg, and have been falsely taken for the testicles of the animal; but they are found indifferently in males and females. The matter inclosed in these bags is oily*, of a sharp-bitter taste, and strong disagreeable smell; but when taken from the animal, it dries and condenses, and becomes of the consistence of wax by hanging it in a chimney. The Russians cure their Castoreum in the following manner: they boil a few wood-ashes in a proper quantity of water, tie the bags in couples, and put them in the boiling water for half a quarter of an hour. This done, they lay the bark of the birch tree on the fire, and smoke the bags over it for about an hour; and then letting them hang for a week or longer, till they are perfectly dry and

* It is certain that ducks, geese, and all sorts of water-fowl, have a gland in their rump, from which they express with their bill an oily matter, wherewith they anoint their feathers, to prevent their being too much affected by the water: and the glands of that large Duck, commonly called the Muscovy Duck, or rather Musk Duck, afford an oil as fragrant as civet. It is therefore probable, that as the beaver is an animal which frequents the water, the Castoreum is a substance provided by nature to grease and anoint his fur with, to prevent the water from soaking quite to his skin. And this seems to be confirmed by an observation, that the beaver frequently stops when he is hunted, and just going into the water, putting his mouth towards the anus, in order to squeeze out the oily liquor contained in his bags, to anoint his fur and preserve it from injury. Hence possibly the story had its rise, that this animal, sensible the hunters pursue him for the sake of his testicles, sometimes stops and bites them off, and leaves them to his pursuers, in order to save his life.

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hard, they pack them up for use or exportation. As to the virtues of Castoreum, it discusses flatulences, corroborates the head and nervous system, rallies the languishing spirits, resists poisons, causes sneezing, and provokes the Menfes. Hence it is of use in a lethargy, apoplexy, epilepsy, vertigo, palsy, tremblings, hysterics, and cholic pains; and as it consists of very minute and penetrating parts, and is possessed of a certain acrimony, it seems proper to rouze and excite a languid circulation. It is also said to cure a ringing in the ears, difficulty of hearing, and pains in the teeth, and to correct the virulence of opium.

SIR Hans Sloane kept a young female beaver three months in his garden, till at last she was killed by a dog. She was about half grown, not exceeding twenty-two inches in length, from the nose to the root of the tail, which was eight inches long. She was very thick, and paunch-bellied; and the shape of the head, and indeed of the whole animal, except the hind feet and tail, much resembled that of a great over-grown rat. They fed her with bread and water, and gave her some willow-boughs, of which she eat but little; but being turned loose in the garden, she seemed to like the vines, having gnawed several of them as high as she could reach, quite down to the roots: she likewise gnawed the jessamine, and some holly trees, but these least of all. Being put into a fountain with some live flounders, she never offered to strike at them, as an otter would have done; so that fish does not seem to be the natural food of these creatures, but herbs, fruits, and branches of trees. In swimming she made use of her hind feet only, holding her fore feet close up under her throat, and never moving them till she came to the side, and endeavoured to get out of

the water. She swam under water as swift as a carp, and would now and then come up to breathe, thrusting her nostrils just above the surface. Her hind legs being longer than her fore legs, she walked but slowly, or rather waddled like a duck; and if drove fast along, she could not run, but went by leaps or jumps, flapping her tail against the ground.—As to the wonderful polity observed amongst the beavers, their gnawing down great trees, their manner of building their habitations, and other particulars of that kind, we shall take notice of them when we come to Canada, which country abounds with those animals more than any other part of the world.

AMONGST the furs of Siberia, that of the Ermine is in great esteem for its whiteness and lustre. This creature is a sort of pole-cat or weasel, and has sometimes been confounded with the squirrel, and even with the sable; though they are three different animals. In order to heighten the charming white of the ermine, the furriers usually sew here and there little black tufts, which are bits of the skin of a lamb of a very shining black, though some say they are pieces of the ermine's tail.

THE Sable is a sort of weasel found in several countries, but those of Siberia are the most esteemed. The blackest bear the highest price, and therefore the Russians have found out a way of dying the brown sable to the colour of that which is naturally of a most beautiful black: but lemon-juice will discharge this artificial colour, and lay the cheat open.

THE Black Fox is as well known in Siberia as the sable, nor is it common any where but in such cold countries, so that to suppose all animals have white hair in the northern climates, is a vulgar error.

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error. Some of them indeed are found perfectly white, which would naturally be of another colour in warmer countries; and some that are brown in summer, as hares for instance, turn grey or white in winter, and the next summer resume their former colour: but there are many which are not subject to such changes.

WE have another sort of fur from Siberia, which is the skin of a squirrel found there and in other northern countries. These creatures are brown in summer, but grey in winter, at which time they are killed, and afford two different sorts of furs, the back being grey, and the belly as white as ermine. It is bordered on each side with a black streak, which is carefully preserved. When the fur is varied alternately with the skin of the back and belly, it is much the richer.

To these animals we ought to add a sort of mountain-cat, bigger than a fox, which for its sparkling eye is looked upon by several naturalists to be the *Lynx* of the antients. This creature is found in other parts of Europe as well as in Muscovy, and its spotted skin is one of the most beautiful in the world, though it does not seem to be so much esteemed as it deserves.

THERE is a species of rats at Kamptschatka, which nearly resemble the Lemming already described in treating of Norway; but these live in the woods, fields, and high mountains, in a kind of community, having very neat nests, which are large, and divided into different apartments spread with grass; in some of which they store up roots of several kinds, which they gather with great labour in summer, and lay up against winter; dragging them out in sunshiny weather, in order to dry them. All the summer they live upon berries, and such other food as they can find, never touch-

ing their winter provisions while any is to be procured in the fields. These, like the Lemming, change their habitations, and sometimes they all leave Kamptschatka, which the Kamptschadales imagine, forbodes a rainy season, and a bad year for hunting; but when they return, they expect a fine one, and a good year for the chase; and therefore expresses are sent to all parts with the agreeable news. When they depart, it is always in the spring, first assembling in great numbers. They steer their course due west, crossing rivers, lakes, and even arms of the sea; and when they reach the shore, spent with fatigue, they lie as if dead upon the banks, till recovering their strength, they again pursue their march. They have nothing to fear on the land, their greatest danger is least some ravenous fish should devour them; for the Kamptschadales, on finding them weak on the banks, give the many assistance in their power. From the river Pénigin they march southward; and about the middle of July, usually reach Ochotska and Judoma. Their troop is sometimes so numerous, that travellers are obliged to wait two hours for their passing by. They usually return to Kamptschatka about the month of October. 'Tis extremely surprizing, that such animals are able to pass over such an immense tract of land. And nothing can be more admirable than the regularity and order they observe in their march.

AMONG the amphibious animals of Kamptschatka are many different kinds, the Maneti, or sea-cow here, never comes on shore, but constantly lives in the water. It resembles the cow only in its snout, and has neither horns, strait ears, nor legs. It is an animal like a seal, only vastly larger, it being about twenty eight feet long, and some of them are eight thousand pounds weight. Its skin

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is black and thick, like the bark of an aged oak; and so hard and tough, that it can scarcely be cut with an ax. Its head is small in proportion to its body, and its snout white and rough, with white whiskers about nine inches long. Instead of teeth, it has two flat white bones, one above, and the other below. Its eyes are black, and no larger than those of a sheep, which is remarkable in a creature of so monstrous a size, and its ears are only small openings; its neck can scarcely be discovered, but there are some vertebræ, which enable it to turn its head, and to hang it down in feeding like a cow. The body is round like that of a seal; the female has two teats on her breast; the tail is thick, with some resemblance to the fins of a fish. It has too fins under its neck, about twenty one inches long, these it uses like hands; and not only swims with them, but takes hold of the rocks with such force, that on its being dragged from thence with hooks, it will leave the skin behind.

THESE animals in calm weather, swim in droves near the mouths of the rivers: they bring forth in harvest, and never have more than one at a time. They are almost continually eating sea-weeds, and have their backs and sides above water; upon which flocks of crows settle, to pick off the vermin they find there. Any one may go among them in boats, and take which he pleases. They are caught with great iron hooks, somewhat resembling the fluke of a small anchor. A man in a boat, with three or four rowers, coming among the herd, strikes the hook into one of them; and then about thirty men on the shore, who hold one end of the rope that is fastened to the hook, draw the Manetoe towards the land, while those in the boat stab and cut the animal till it dies. When

one of them struggles to clear himself of the hook, those of the herd that are nearest, come to his assistance; some frequently overset the boat by getting under it, and others strive to remove the hook, by striking it with their tails, which sometimes succeeds. The male and female have such an affection for each other, that when one of them has in vain used every method in its power to give assistance, it follows the body after it is killed to the very shore, where it sometimes remains two or three days. Their flesh when thoroughly boiled, has a good taste, and resembles that of beef; the fat of the young eats like that of pork, and the lean like veal.

THE number of seals in the seas and lakes of Kamptschatka is so great, that all the islands and sandbanks are covered with them. There are here four sorts of those animals, one species of which is of the size of a yearling bullock, has a skin somewhat like that of a tyger, its back having spots of an equal size, and its belly being yellowish and white.

IN spring and september are caught the sea-cats, thus called at Kamptschatka, from the long hairs standing out on both sides of the mouth, like those of cats. But Dampier, who saw them in the south-sea, has termed them sea-bears. The largest weigh about eight thousand weight. Most of the females taken in spring are pregnant; and those that are near the time of bringing forth their young, are immediately opened, and the young ones killed. They breed on the neighbouring coast of America, which has been found by the Russians to extend from east to west, almost to Kamptschatka; there they nurse their young three months, and return with them at the end of summer. The females give suck with two teats placed

placed between their hinder legs; but they have seldom more than one at a time. The young see when they are whelped, their eyes are as large as those of an ox; and they have thirty-two teeth, besides two tusks on each side, which begin to appear the fourth day after their birth. They are at first of a dark blue; but grey hair begins to appear in four or five days; and in a month's time, their belly is black and grey. The male is larger and blacker than the female; and they are so different in their form and strength, that they seem different animals: besides the former are fierce, and the latter mild and fearful. The male has from eight to fifty females, of whom he is so jealous, that he will allow none to come near them; and though many thousands lie on the shore, every family lives apart; the male with his females, young ones, and those of a year old, that have not attached themselves to any male; so that the family sometimes consists of a hundred and twenty. Those that are old, or have no mistress, live by themselves; and some lie asleep a whole month, without nourishment.

THEY attack all that pass by, for on seeing a man approach, some rush upon him, while others lie ready to support them. They bite the stones that are thrown at them, and rush with redoubled violence on him that throws them: even if you strike out their teeth with stones, or put out their eyes, they will not fly; and indeed they dare not; for could they save themselves from man, their own brethern would destroy them; for if any one seems to be driven back ever so little, others approach to prevent his running; and if he appears to design it, fall upon him. Sometimes they are seen fighting for a mile together, and then one may pass them without danger. If two fall upon
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one, others advance to support the weakest; for they will not allow of an unequal combat. While these battles last, those that are swimming in the sea, raise their heads, and look at the combatants; and at length come ashore, and encrease their number. When only two of them fight, the battle frequently lasts an hour; sometimes they rest, lying by each other, then both rise at once, and renew the engagement. When fighting, they hold up their heads, and turn aside to escape a blow; for while their strength is equal, they fight only with their fore paws; but one of them no sooner becomes weak, than the other seizing him with his teeth, throws him on the ground; and then the lookers on come to the assistance of the vanquished. Their most bloody battles are when one endeavours to carry off the mistress or young females of another. They also quarrel when one comes too near them. Though the male is fond of his young, both they and the large females fear him extremely. If a man endeavours to take a young one, the male attacks him, while the female endeavours to escape with it; but if she drops it out of her mouth, the male leaves his enemy, and seizing upon her with his teeth, beats her against the stones, till she lies down as if dead; but she no sooner recovers, than she is said to crawl to his feet, which she licks and washes with her tears that flow in abundance; while the male stalking about, gnashes his teeth, and tosses his head. They swim exceeding fast, and when they happen to be wounded at sea, they seize the boats of the fishermen with their teeth, and drag them along so swiftly, that they seem to fly rather than swim upon the water; by which means the boat is frequently overset, and the people drowned.

HERA

HERE are also sea-beavers, which resemble the others only in their downy hair; they are as large as the sea-cats; their head is like that of a bear; and in their shape, they resemble the seal: their teeth are small; their fore feet are longer than those behind; their tail is flat, short, and sharp towards the point; and their hair thick and black; but that of the old ones is grey. This animal is so peaceable, that it never makes any resistance, and always endeavours to escape by flight. It is remarkable, that the females carry those of their young that cannot swim, upon their belly, holding them with their fore feet, and swimming on their back. When pursued by the fishermen, they never quit their young till the last extremity; and should they happen to slip out of their paws, they instantly return to take them up again; whence the fishermen endeavour to kill or catch the young, as the most effectual method of taking their dams*.

OF all the fish that are found in the seas and rivers of the Russian empire, which afford great plenty and variety, the Sturgeon seems to be the most worthy our notice, on account of the vast traffick it occasions†. The sturgeon is a large sea-fish, which at its season swim up the rivers, having a sharp pointed snout, flat belly, and bluish back. They are of various sizes, sometimes fourteen or even twenty feet in length; but those of a middle size are reckoned the best. When fresh, they are delicious food; and to keep them they are salted or pickled in large pieces, and put up in cags,

* See the history of Kamptschatka, published in the Russian language, by order of her imperial majesty, and translated into English, by James Grieve, M. D.

† Sturgeons, with us, are reckoned among the number of royal fishes, as belonging to the king when left on shore, but when taken out at sea are the property of the person who takes them.

from twenty-five to fifty pounds.—The greatest sturgeon fishery in the world is at the mouth of the Wolga, which falls into the Caspian sea, where a multitude of hands are employed. The fish are not taken with nets, but in a kind of inclosure formed with huge stakes disposed in triangles, representing the letter Z several times repeated; which being open on the side towards the sea, and close on the other, the fish, ascending in the season up the river, embarrass themselves in these narrow angular retreats, and not being able to turn themselves back again by reason of their bulk, are easily struck and killed with a sort of harpoon or javelin. It is only the lesser and younger sturgeons that are pickled for eating; but the great object of this fishery is the roe or spawn of the fish, a commodity as much used in Moscovy as butter in Holland. The roes are cured by salting and drying them in the sun or by the fire, and thus prepared it is called Cavear or Cavea, and is sent up the Wolga to Moscow, from whence it is distributed into all parts of the empire, where it is of great service to the people, on account of the several Lents they observe with the utmost strictness. The English import considerable quantities of cavear from Russia, but not so much for home consumption (though it has lately been introduced to our tables) as to supply the French and Italians. If good, it is of a reddish brown colour, and very dry. Some eat it with oil and lemon, others with vinegar; sometimes it is eaten alone with bread, and sometimes only as a sauce or pickle, like anchovies.

On the coast of Kamptschatka are an inconceivable quantity of fish, particularly a large kind of salmon, cod, skate, redfish, turbot, herring, lampreys, and many others, which come from the sea

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sea in such numbers, that they frequently stop the course of the rivers, and cause them to overflow their banks; and when the waters retire, a surprising quantity of dead fish remain on the shore, which cause an intolerable stench.

BUILDINGS, &c.

IN a country so rude and unpolished as Moscow has been till of late, one cannot expect to find many instances of beautiful or elegant architecture, and yet there are some structures to be met with which are not undeservedly admired. The stately church in the city of Moscow, called the Jerusalem, is said to be such an extraordinary pile of building, that the Czar John Basilides the First, in whose reign it was erected, ordered the eyes of the architect to be put out, that he might never contrive or behold its equal. There are several other magnificent churches in the same city, particularly that of St. Michael, which stands within the walls of the castle, and is adorned with the tombs of the Czars or great dukes of Moscow. On the right side of the altar is the Czar's throne, and on the left that of the Patriarch; and in the body of the church hangs a chandelier of immense weight and value. The very jewels and other ornaments that enrich a picture of the virgin Mary are valued at half a ton weight of gold; besides a vast number of statues, chalices, and other utensils of gold and silver finely wrought and set with precious stones, a great many rich sacerdotal vestments, and an immense quantity of donatives, offered to the relicks of three eminent Russian saints which are here interred: so that the treasure of this church is said to be equal, at least, to that of any cathedral in Europe.—The
tombs

tombs of the princes who never reigned are in a separate chapel; and the princesses of the blood are interred in a neighbouring monastery of nuns, which is a noble structure.

It is observed, that near the churches are hung up several large bells, which are kept continually chiming; and as we have mentioned several bells of a very extraordinary size, we ought not to omit one of those at Moscow, which Mr. Hanway observes, affords a surprizing proof of the folly of those who caused it to be made; but the Russians, he adds, have from time immemorial, being extremely fond of great bells. This bell is 443,772 pounds weight, and was cast in the reign of the empress Anne, but the beam on which it hung being burnt, it fell, and a large piece is broke out of it.

NEXT to the churches of Moscow we may reckon those of Petersburg, especially the cathedral, which is a magnificent edifice, built by the direction of an Italian architect.—That of Nis-Novogrod is a stately pile, all built of stone, having fine cupolas, after the model of that of Santa Sophia at Constantinople. These cupolas are painted with a shining green varnish, and the tops of them are adorned with neat small crosses.—Add to these the cathedral church of Wologda, an ancient and majestic structure, which has also five cupolas covered with tin, and crosses on the tops of them finely gilt, which, when the sun shines upon them, make a glittering appearance. Besides this there are twenty other stone-churches in that city, and above forty more built of timber.

As to the imperial palaces, there are two noble ones at Moscow, the one of timber, the other of stone, and built after the Italian manner. Her

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Czarish Majesty's pleasure-house called Petershoff, was built on the coast of Ingria, by Peter the Great; since whose time no expence has been spared in adding to the fine situation of this palace, all the embellishments of art. The building is indeed far from being regular, but it stands on a hill about sixty feet high; and on one side has a most extensive prospect, diversified with noble objects, as the city of Petersburg, Cronstadt, and the gulph of Finland. The gardens are extremely elegant, and adorned with fountains that throw up vast columns of water, to an extraordinary height; and whoever views these, with the grottos, double cascades, pleasant groves, and many other ornaments, will not think these gardens much inferior to those of Versailles, which they excel in the sweetness of the water. Among the summer-houses, is one distinguished by the name of *Mon Plaisir*, or *My Delight*; and is particularly remarkable for its curious paintings.

THE Imperial winter-palace at Petersburg is a large square building, three stories high, but the architecture is not extraordinary. Behind it, in a spacious area, stands a noble equestrian statue of brass gilt, erected in honour of Peter the Great. Adjoining to this, along the banks of the Neva, are several other palaces, particularly the old Imperial winter palace, and a delightful Imperial summer palace. This last is all of wood, and being only one story high, resembles a pleasure-house. Behind it are several stone buildings for the officers of the court. It has a fine orangery, and a large beautiful garden, most admirably adorned with grotto fountains, and other water-works; with a great number of valuable marble, and alabaster statues brought from Italy; but all of them are not executed with equal skill. Two
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of these statues, which stand near the grotto, representing Faith and Religion, are greatly admired by the connoisseurs for the appearance of the faces, through their transparent veils, which seem to cover them.

MR. HANWAY observes, that with respect to the modern palaces and other buildings, an Italian architect having settled in Russia, notwithstanding the difference of climate, the taste of Italy is adopted at Petersburg; and though the cold of winter is extremely severe, the houses abound much more in windows than ours.

IT will not perhaps be improper to add to this account of the buildings of Russia, a short view of some of the great works undertaken by Peter the Great. One of the most useful of these is a canal, near seventy English miles in length, seventy feet in breadth, and ten or eleven deep, which that prince caused to be cut from the south-west extremity of the lake of Ladoga, to the sea. This great work was begun in 1718, and though vigorously prosecuted, was not compleated till the year 1732, in the reign of the empress Anne. This canal has twenty-five sluices upon it, and several rivers running into it. At the distance of every werst along its banks, is a pillar, marked with the number of wersts; and it is the constant employment of a regiment of soldiers, to keep the canal in repair; for which purpose they are quartered along its banks.

AMONG other great works, the same prince caused a road to be cut from Petersburg, that was to extend seven hundred and thirty-four wersts, or four hundred and eighty-seven English miles, in a direct line; but it is not compleated. Vast forests of fir, birch, and other trees, were cut through, and a passage made through morasses,

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till then thought impassable. Immense quantities of timber were hewn down, ditches were made, and the earth being thrown up and levelled, straight firs, with their surfaces made plain, were laid close to each other upon it. These are supported by a foundation of the same kind of timber, composed of a row of trees, on each side secured by cross timbers. This road of timber is carried according as the land requires it, for about a hundred and fifty wersts, and as Mr. Hanway calculated, contains two millions one hundred thousand trees.

To these works it will be proper to add, that since the building of Petersburg, the whole road between that city and Moscow has been planted with trees, to distinguish it in winter, when the country is covered with snow. These are firs planted on both sides, at the distance of twenty yards from each other, which, at a moderate computation, amount to a hundred and twenty eight thousand four hundred and eighty trees, and at certain distances, are usually great piles of wood, in order to give light to the empress and her court, if they pass through that road in the night. On these occasions, her late Imperial majesty was drawn in a kind of house, that contained her bed, a table, and other conveniencies, where four persons might take a repast. This wooden structure, which had a sloping roof, and small windows, to admit as little cold as possible, was fixed on a sledge, and drawn by twenty-four post-horses; and if any of them failed on the road, others were ready to supply their places. The late empress was seldom more than three days and nights on the way; notwithstanding her having several small palaces, at which she sometimes stopped to refresh herself, and the distance being no less than four hundred and eighty-eight English miles,

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miles. Peter the Great once made the journey in forty six hours, but did not travel in the same carriage; and Mr. Busching observes, that it is not uncommon to go it with post-horses, in seventy two hours.

Of the RUSSIANS.

BEFORE the reign of Peter the Great, the Russians might justly be termed Savages; but by incredible application, that wise prince wrought such a change in their manners, as sets them, in a great measure, on a level with other civilized nations. They are, for the most part, of the middle stature; and the common people are still fond of their ancient customs. Indeed the majority of them have been gradually brought to submit, tho' with reluctance, to modern improvements; yet many chuse to suffer great inconveniencies, and to pay additional taxes, rather than cut off their beards, and conform to some regulations with respect to religion.

THE Russian women are extremely fond of paint, and daubing their cheeks with red, and even the poor beg money to buy paint, to mend their complexions. By this means they conceal the graces which nature bestows on them. Persons of distinction are fond of state and splendor; but the common people are cloathed with long coats made of dressed sheep-skins, secured by a cord of rushes; and their sandals are of the same materials. Their caps are lined with fur, and cover not only the head, but the neck; they have sashes round their waist, and double gloves; one of woollen, and the other of leather, which take in the hand, without any distinction, except the thumb. However, persons in tolerable circumstances

stances dress nearly as we do in England, only they wear a full great coat lined with fur, with a deep quilted or fur cap when they go abroad. The women of the lower class, besides their petticoats, wear sheep-skins, like the men; but those of superior rank have flowered silk cloaks, commonly lined with the skins of white hares; and ladies of great distinction, have them lined with rich furs, and wear them almost constantly.

PEOPLE of both sexes have a cross hanging at their breast, which is put on when they are baptized, and they never lay it aside as long as they live: the peasants have them of lead, but those worn by wealthy persons are of gold or silver.

THE Russians seldom fail of bathing twice a week, for which purpose almost every housekeeper is provided with a bath; and he that has none of his own, goes to those that are public. They often sally out naked from the warm bath, run about in the cold, roll themselves in the snow, and then plunge again into the warm water, from the opinion, that this vicissitude of heat and cold strengthens the constitution, and renders them robust and hardy.

THE usual method of building, both in the town and country villages, is to lay one beam of wood upon another, and fastening them at the four corners, fill up the spaces between the beams with moss. They then cover the house with shingles, and cut holes in the timber for doors and windows. A brick stove, or large oven, is usually made in the peasants houses; this is flat at the top, and boarded. Upon this, and on a sort of shelves round the room, they sleep without beds. Their furniture consists of a long table, three benches, and a picture of a saint or two.

Instead

Instead of candles or lamps, the peasants usually burn long splinters of deal. Their apartments are as black as possible; for the fire hearth being within the above stove, which has no other vent for the smoke but into the room, the walls are covered with soot.

THE extreme fondness of the common people for spirituous liquors, and other strong drink, especially in the carnival time, is in a great measure owing to the severity of the winter, their rigorous fasts, and the slender diet they live upon throughout the year; their food chiefly consisting of turnips, peas, cabbages, large cucumbers, onions, and fish. Their common drink is a kind of small mead; but even among the gentry, brandy makes a part of every repast. Their fasts take up near two thirds of the year, and these are observed with great strictness. At other times, people of rank have at their tables a variety of flesh meat and fowl; but before they sit down the mistress of the family presents every one of the guests with a cup of brandy on a plate or salver; and among particular friends, all the company salute her. The first dish usually consists of hams, tongues, and made dishes, dressed with oil, olives, onions, and garlick; which having remained some time on the table, they bring in a second course, consisting of soups, roast, and boiled meat; after which follows the desert, and plenty of wine, brandy, beer, and mead.

PEOPLE of the ordinary rank salute each other with great civility; but before a Russian welcomes his guest, his visitor must make the sign of the cross, and bow to the picture of a Saint, which is so placed, as to be immediately seen on his coming in. In visits of ceremony the men and women generally welcome each other with a kiss; but

but those of the lower class shew their respect to persons of high rank, by prostrating themselves on the ground before them.

PETER the Great spared neither trouble nor expence, to dispel the clouds of ignorance, which, till his time, had overspread his empire, and to inspire his subjects with a taste for the arts and sciences: he founded an university, a seminary, and an academy of sciences, at Petersburg, besides other schools in the different parts of his empire: invited persons of learning, and skill in the arts, to settle in his dominions; and encourage his subjects to travel where the arts and sciences flourished. Hence persons of genius among the Russians have cultivated their minds, and make some figure in the republic of letters. Indeed, as there are only three universities in that vast empire, learning may be said to be yet only in its infancy, and the number of the learned Russians is but small. The studies to which they chiefly apply themselves are history, geography, and the mathematicks. The members of the academy of sciences at Petersburg, not only publish their own memoirs, but compose a variety of books for the instruction of youth in the sciences; and make translations of the most useful books published in foreign countries. All the mechanic arts and trades are also continually improving in Russia. These were begun by foreigners, but the natives, spurred on by emulation, frequently equal, and sometimes exceed their masters. They have flourishing manufactures of velvet, silk, linen, and woollen stuffs; they work in copper, brass, iron, steel, and tin; cannon, muskets, gunpowder, wire, paper, parchment, glass, cordage, and sail cloth, are also made in Russia; but

most of them are inferior to those imported from other countries.

THE people are, however, in a state of the greatest subjection, for the government is perfectly absolute; and notwithstanding Peter's giving them the name of Subjects, the people of all ranks may be justly termed slaves, their lives and fortunes solely depending on the will of their sovereigns. Yet such as are employed in state affairs, have their share of arbitrary power, their proceedings being without appeal, and the peasants are still perfect slaves, and absolutely subject to the arbitrary power of their lords, who may treat them as they please, provided they do not kill them. However, for deciding causes between private men, they make use of precedents, and a code of written laws.

IN disputes between private persons, where the parties disagree about a matter of fact, and have no evidence on either side, the judge asks the plaintiff, whether he will take his oath that the affair was as he has represented it, or refer it to the oath of the defendant. He who is to be sworn, is brought before a picture of one of their Saints, where he is asked, whether he will swear upon the salvation of his soul? If he answers in the affirmative, they give him a little crucifix to kiss; and afterwards the picture of a Saint, which is taken down from the wall for that purpose. But though the oath be indisputably true, the person who takes it, is not admitted to communion for three years, and people of any rank will not easily suffer him in their company; but the perjured is punished with the knute, and then banished. Hence the Russians endeavour, as much as possible, to avoid taking an oath, though they are very guilty of profane swearing. Strangers are
allowed

allowed to take their oaths according to the rules of their several religions.

THE office of executioner is hereditary, and is now esteemed infamous, but upon failure of issue, the butchers are obliged to choose one out of their body. The usual punishments in Russia are the Battogen, Katza, and Knute. He who is sentenced to suffer the Battogen, is stripped to his shirt, and laid with his belly upon the ground; when one man sitting upon his neck, and another upon his feet, beat him on the back with switches, during the time ordered by the judge.

THE Katza is flitting the nostrils, which was formerly inflicted on all, who, contrary to an old prohibition, took snuff.

THE Knute is a most barbarous punishment. Olearius gives a description of the manner in which he saw it inflicted on eight men and one woman, only for selling brandy and tobacco, without a licence. The executioner's man, after stripping them down to the waist, tied their feet, and took one at a time upon his back. The executioner stood at three paces distance with a bull's pizzle, to the end of which were fastened three thongs of an elk-skin, untanned, with which, springing forward, whenever he struck, the blood gushed out at every blow. The men had each twenty-five or twenty-six lashes, till an officer, who had the number they were to receive in writing, cried, Enough. The woman, who had only sixteen, fainted away. After their backs were thus dreadfully mangled, they were tied together two and two, those who sold tobacco, having a little horn of it, and those who had sold brandy, a little bottle put about their necks; and then they were whipt through the city for about a mile and a half; after which they were brought back to the place

of their first punishment, and dismissed. According to M. de la Motre, this is what is termed the moderate Knute ; for when the sentence orders it, between the moderate and severe, the executioner takes off pieces of flesh at every stroke ; and when it is ordered to be given with the utmost severity, the executioners, striking the flank under the ribs, cuts the flesh to the very bowels. It is no wonder that many die of this cruel and inhuman punishment. Offenders are also sometimes bastinadoed on the soles of their feet, in a most cruel manner.

THEY torture thieves with all the cruelty that can be conceived, in order to make them discover their accomplices, and confess their other crimes. Yet for the first offence, the thief is only whipt from the prison to the market-place, where he has his ears cut off ; and is sent back to prison for two years. If he offends a second time, he is whipt as before, and banished into Siberia. Theft is there never punished with death, but the receivers of stolen goods are punished in the same manner as the thief.

SEVERE as the Russians are in the punishment of small offences, that for murder is extremely merciful ; the criminal being only kept six weeks in a close prison upon bread and water alone, after which he receives the communion, and is beheaded. Yet he who cannot pay his creditor at the time agreed upon, is put into the house of an officer, and has at first a farther time allowed him ; but if he then fails, he is not only carried to prison, but is brought out every day to a place before the chancery, where the common executioner beats him upon the shin bones with a small switch for an hour together. He is then returned to prison, except he can give security for his appearing again

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the next day at the same hour, to be treated in the same manner, till he has made satisfaction. This is rigorously executed upon persons of all ranks, subjects and foreigners, men and women, priests and laymen; and if the debtor is at last unable to pay, he, with his wife and children, are sentenced to be bond-slaves to the creditor.

WE ought not to conclude this account of the punishments inflicted by the Russians, without taking notice of the manner in which they put to death the pirates on the river Wolga, who are a cruel and bloody band of desperate villains. However the punishment of these wretches, when taken, is not less dreadful than the cruelties they commit. A float is built, whereon a gallows is erected, on which is fastened a number of iron hooks, and on these they are hung alive by the ribs. The float is then launched into the stream with labels over their heads, signifying their crime; and orders are given to all the towns and villages on the borders of the river, that none, upon pain of death, shall afford relief to any of these wretches; but put off the float, if it runs ashore. Sometimes they are met by their partners in wickedness, who if they have any hopes of their recovery take them down, otherwise they put an end to their lives by shooting them; but if they are caught in these illegal acts of mercy, they are themselves hung up, without the ceremony of a trial. It is said, that one of these miscreants had the good fortune to disengage himself from the hook, and though naked and trembling with pain and loss of blood, he got a shore, when the first object he saw being a poor shepherd, he had the cruelty to beat out his brains with a stone, and then to take his cloaths. These malefactors frequently hang thus, three, four, and sometimes

five days alive. The pain generally produces a raging fever, wherein they utter the most horrid imprecations, and cry out for water to quench their thirst.

To this account of the Russians we shall add a concise description of the manners of the inhabitants of Kamptsehatka, which, as we have already said, is on the eastern extremity of Siberia, and subject to Russia, yet being at an immense distance, their manners and customs are very different from those of the Russians.

Of the KAMTSCHADALES.

THESE people are swarthy and of a small stature; they have a broad face, black hair, hollow eyes, small and thin eye-brows, a sharp nose, and slender legs. Their faces are shorter than those of the other Siberians, their cheeks are more swelling, they have broad shoulders, and wide mouths.

THEY are dressed in the skin of deer, dogs, and other land and sea-animals, and even the skins of birds; and it is not unusual with them, to use those of different animals in the same garment. They generally wear two coats; the under coat with the hairy side inwards, and the upper with the hair outwards, which is commonly made of black, white, or speckled skins. Some have their skirts of an equal length, while others have them long behind, in the form of a train. The sleeves of the upper coat are wide, and so long as to hang below the knee; and it has a hood, which, in bad weather, they put over their heads. They border their coat with white dogs skin, and upon their backs, sew small shreds of different coloured skins or silks. These are worn both by men and women, but the latter commonly wear at home an under garment, consisting of a waistcoat and drawers

drawers tied together. The men at home wear only a girdle of leather, with a band before, and a leathern apron behind, and below their girdles they wear linnen shirts, which they buy of the Russians. Their feet and legs are covered with different sorts of skins. During the rains of summer, their stockings or buskins are of seal-skins, with the hair outwards; but their most common covering for their legs, is the skin of the legs of rein deer: however, their finest buskins are made with the soal of a white seal-skin; the upper part of fine dyed leather, the hind quarters of white dog-skin, and what comes round the legs is of dressed leather, or dyed seal-skins, with the upper parts worked with the needle. They wear fur caps, and in summer a kind of hats of birch-bark. However, in the Russian settlements, the ancient dress is laid aside, and the women wear shifts, ruffles, caps, waistcoats, and ribbons; and though they formerly never washed their faces, they now use white and red paint. But still the distant inhabitants neither wash their hands, nor cut their nails; they eat out of the same dish as the dogs, and yet never wash it; and every thing about them stinks of fish. They never comb their heads, but both men and women plait their hair in two locks, binding the ends with small cords; and when any hair starts out, they fasten it close with thread; hence they are excessive lousy.

THEIR manners are extremely unpolished, they never using any civil salutation; for they never take off their caps, nor bow to each other. But though their discourse betrays great ignorance and stupidity, they, upon many occasions, appear curious and inquisitive.

IN winter they live under ground, where they build their huts by digging a hole about five feet deep, and of a breadth and length, in proportion to the number of persons designed to live in it, fixing at the corners four pieces of timber, upon which they place beams, and upon them form their roof or cieling; leaving in the middle an opening, which serves both for a window and a chimney. This building they cover with grass and earth, so that it resembles a round hillock. The room below forms an oblong square, with the fire-place in one of the long sides; and round the room are benches, on which each family lies separately, except on the side opposite to the fire, where they place their kitchen furniture, and dress victuals. In some huts, instead of benches, the place is floored with wood and covered with mats. These huts are entered by ladders, and the Kamptschadales live in them all the winter.

THEIR summer huts are made by fixing nine pillars, about four yards long or more, in the ground, and binding them together with beams laid over them; upon these they form a floor, and from thence raise a sharp roof, rising from each side up to a point in the middle, and thatching it with grass, with a door on each side. These summer-huts are thus placed high above the ground, on account of the frequent rain, which would spoil all the fish, were it not preserved in such places, and to prevent their being plundered by the wild beasts; for notwithstanding all their care, the bears sometimes climb up and force their way into these store-houses, especially in the time of harvest, when the fish and berries grow scarce. These are built round their winter habitations; and during that season, serve only as store-houses. However, the southern Kamptschadales generally

build

build their villages in thick woods, at a considerable distance from the sea; and their summer habitations near the mouths of the rivers. Their household furniture consists in dishes, troughs, bowls and cans.

THEY generally seek for a wife in some of the neighbouring villages, and seldom in their own; and when a Kamptschadale has found one to his mind, he lets her parents know it, and desires to have the liberty of serving them for some time; which is no sooner expired, than he begs to have the liberty of seizing his bride; which, if he has pleased the parents, is instantly granted; otherwise he is dismissed, with a present for his services. As the whole ceremony of marriage consists in stripping the young woman naked, this is rendered as difficult as possible: she has two or three different coats, and is swathed round with fishing-nets and straps; besides, all the women in the village are obliged to protect her. The lover therefore watches for an opportunity of finding her alone, or when there are but few women with her; and then rushes upon her, and begins to pull off her straps, nets, and cloaths; but this is no easy task; for tho' the young woman herself makes only a faint resistance, those in her company fall upon him without mercy, dragging him by the hair, beating him and scratching his face, using every method they can think of to prevent his accomplishing his design. If he succeeds in his attempt, he immediately runs from her, when the bride, as a proof of her being conquered, calls him back, with a soft and feeble voice. The same night he goes to bed to her, and the next day he takes her home. Some time after they return to the bride's relations, where the marriage feast is celebrated.

WHEN a widow is married, the agreement of the parties is sufficient; but our author says, the man must not take her to himself before her sins are done away, which can only be accomplished by a stranger's once lying with her; but as the Kamptschadales consider the taking off of sin as extremely dishonourable for the man, it was formerly very difficult to procure one to undertake it; but since the Cossacs are come among them, the poor widows are in no distress for strangers to purify them from their sins.

A KAMPTSCHADALE has frequently three wives, tho', with every maid, he is obliged to undergo the above ceremony: however, the women are so far from being inclined to jealousy, that the wives live together in perfect harmony. They have commonly very easy labours, and are delivered upon their knees, in the presence of all the people in the village, without distinction of age or sex, the woman's mother, or nearest relation, performing the office of midwife. Though endeavouring to procure abortion is esteemed a capital crime, yet they have the barbarous custom of being obliged to destroy one of the children, when a woman bears twins; and also any child that happens to be born in stormy weather.

WHEN the women go abroad, they veil their faces; and if they meet a man, and cannot get out of the way, they turn their backs to him, till he has passed by. The women, who have generally clear and agreeable voices, compose their love-songs, in which they declare their affection to their lovers, their fondness, grief, and other passions; but though they are fond of music, they have no other instrument but a kind of flute, on which they play very indifferently. The women entertain each other thus with mirth and singing, while

while the men entertain their guests by endeavouring to make them eat till they are sick, and suffocating them with heat. They, however, sometimes smoke, and tell stories with their friends.

BEFORE the Kamptschadales were conquered by the Russians, they used to sew their cloaths with needles made of bone, and instead of thread, made use of the fibres of the deer, which they split, till they brought it to the thickness required: of stones and bones they also made hatchets, spears, lances, and arrows. Their hatchets were sometimes made of flint, and sometimes of the bones of whales, or rein-deer; they were in the form of a wedge, and fastened to crooked handles. With these they hollowed out their troughs, canoes, and bowls; but the work was so tedious, that the making a canoe cost the labour of three years; and their wooden bowls, which were long in making, were more valued by them than vessels of the most precious metals are with us. In these bowls they dress their victuals, and heat their broth, by throwing red-hot stones into it. They made their knives of a greenish crystal, sharp pointed, and shaped like a lancet, stuck into a wooden handle. In order to kindle a fire, they use a board of dry wood, in which are several round holes, and putting the end of a small round stick into one of them, roll it backwards and forwards with the palms of both hands, till the friction causes the wood to take fire. These instruments are so highly valued, that they are never without them, for they prefer them to steel and flints; yet they are extremely fond of iron hatchets, knives and needles. The Russian traders are forbid to sell them any warlike instruments; but they are so ingenious, as to make spears and arrows out of the iron pots and kettles that are sold to them; and,

what seems more extraordinary, when the eye of a needle is broke, they make a new one, which they repeat till nothing remains but the point; but it is probable the needles they use are not very fine ones. In short, all the men not only understand hunting, fishing, and weaving nets, but also making sledges and boats, building their huts, and forming their furniture and warlike instruments.

In travelling, they make use of sledges drawn by four dogs, sitting upon the right side of the sledge, with their feet hanging down; for it would be thought a disgrace to sit in it, or to have a person to drive them, no body doing this but the women. A man is therefore obliged to keep an exact balance, to prevent his being overturned, which would be very dangerous, as the dogs never stop till they come to a house, and in going down steep hills, run with all their force; therefore, in descending great declivities, they unyoke all the dogs except one, and lead them gently down. They also walk up every steep ascent, for it is as much as the dogs can do, to drag up the empty sledge. Upon a tolerable road, they can travel with a sledge filled with provisions, and the driver, about thirty wersts a day; and in spring, when the snow is hard, they can travel with only the driver a hundred and fifty wersts. If a number of travellers are surprized by a storm, they take a place of shelter under the snow, and cover the entrance with wood or brambles. They, however, seldom make these temporary huts, but more commonly hide themselves in holes of the earth, wrapping themselves in their furs, with the snow over them; and when thus covered, they move with great caution, lest they should throw off the snow, which keeps them perfectly warm; they

must

must only have the convenience of a breathing-place.

THERE is one extraordinary custom observed among these people, that appears extremely savage; that is, instead of burying the dead, they drag the corpse out of the hut, with a strap fastened round the neck; and then deliver it for food to their dogs, alledging that those who are devoured by dogs, will be drawn in sledges by fine dogs in the other world; and that the corpse is thus used near the hut, that the evil spirits, who have occasioned his death, may be satisfied with the mischief they have done. However, it is not unusual, when a person has died in the hut, to remove to another, and leave the corpse behind.

HAVING thus gone through the Russian empire, it remains to take a view of the Turkish dominions in Europe, which will finish the first part of our undertaking.

CHAPTER XII.

OF TURKEY, in EUROPE.

CAVERNS, NEW ISLANDS, &c.

THIS part of the Turkish empire was formerly the most considerable of the European continent, having been inhabited by nations who make the greatest figure in ancient history. The valour, wisdom, and learning of the old Grecians in particular, is well known to all who are in the least acquainted with antiquity, their country being once the most celebrated in the universe, surpassing all others in arms, arts, and sciences. It was for many ages divided into several small kingdoms

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kingdoms and republics, which were at length reduced to the subjection of the Macedonians, and afterwards became a province of the Roman empire; and so it continued (though harrassed and dismembered by the Goths and Huns) till it was over-run by the Turks, who are its present masters. In this and other parts of the Turkish dominions we shall find many curious remains of antiquity; but, according to our method, some articles of natural history come first under consideration.

IN the course of this work, we have already described several remarkable caves or grottos, but perhaps no curiosity of this kind deserves our attention more than the grotto of Antiparos, an island in the Archipelago, which M. Tournefort, who viewed it in the year 1700, represents as one of the greatest wonders in nature. The descent into this grotto is very difficult and dangerous, being for the most part down rocks and frightful precipices, by means of ropes and ladders, and the assistance of guides who attend with torches. From the first entrance into the cavern, to the bottom of the grotto, is reckoned a hundred-and-fifty fathoms, and the grotto itself is about forty fathoms high and fifty broad. The roof, which is in form of an arch, is embellished with variety of natural fret-work, from whence hang resemblances of bunches of grapes, festoons, and lances of a surprizing length. All round the grotto are formed several little closets or cabinets, among which there is one particularly remarkable, the productions that form it (says M. Tournefort) so exactly resembling the roots, stems, and heads of collyflowers, that one would think nature intended thereby to shew us how she operates in the vegetation

vegetation of stones *. These figures are all of white marble, transparent in small pieces, and, when struck, sound like copper.—Here are likewise three or four columns of the same stone, planted like trunks of trees on the top of a little rock, one of which is six feet eight inches high, and one foot in diameter, and on the same rock are several other budding pillars, resembling the stumps of horns. These stems of marble (adds our author) must certainly vegetate, for not a drop of water falls into the place; and if it did, we cannot conceive how a few drops, falling from

* That stones vegetate, or grow in the manner of plants, seems to have been an ancient and forgotten hypothesis, but lately revived by M. Tournefort, who, at his return from the Levant, proposed his theory to the Royal Academy of Sciences at Paris, which he supported by a variety of arguments and observations. He took notice, in surveying the Labyrinth of Crete, that several people had cut their names in the rock, and that the letters, instead of being hollow, as they must have been at first, (being cut with the point of a knife) were become prominent, and stood out from the surface of the stone, like so many basso-relievos. Hence he inferred, that the nutritious juice of the stone, being extravasated, had gradually filled up the cavities of the letters, and formed a sort of callosity, like those at the extremities of the fibres of broken bones, or on the bark of trees that have been cut with a knife or graver: and being confirmed in his opinion by similar callosities, formed on several other stones which had re-united after they had been broken, he made no doubt of ascribing this effect to vegetation. But this is not all: the same gentleman thinks it probable, that stones not only grow, but are generated like plants, having their respective seeds, which he supposes are a kind of dust that falls from them while they are alive, or continue to vegetate; at least there are abundance of stones whose generation is otherwise inconceivable. This dust may be compared to the seeds of several plants, as those of ferns, mosses, mushrooms, &c. which were always supposed destitute of seed, till it was discovered by the assistance of the microscope.

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such a height as the top of this grotto, should form cylindrical pieces, and always of the same regularity.

At the farther end of the grotto appears a pyramid, still more surprizing than what we have mentioned, which has been called the Altar ever since the year 1673, when the marquis de Nointel, the French ambassador to the Grand Signior, caused mass to be celebrated in this cavern. It stands by itself, is about eight yards high, and consists of many large bunches resembling collyflowers, and all of a dazzling whiteness, like the rest of the grotto. This pyramid M. Tournefort thinks is the finest marble-plant in the world; for it is impossible (he again insists) that it should be formed by the droppings of water, to which the congelations in grottos are usually attributed*; and therefore it is more probable that these productions, as well as those which hang down from the roof like icicles, are owing to a principle of vegetation.

* What M. Tournefort here calls marble, and supposes it to vegetate, is a kind of spar according to Dr. Hill, who describes it under the name of Hard White Stalactagnium, of which very various and beautiful figures are formed in deep caverns by the accidental course and dropping of water; and such combinations and protuberances (he says) are what coat over the famous grottos of the islands in the Archipelago; and the caverns of the Hartz forest in Germany, which people of fertile imaginations have supposed to represent groves, rivers, trees, plants, buildings, and the forms of various animals. Dr. Hill has particularly mentioned the grotto of Antiparos, but has not taken notice of what M. Tournefort relates concerning it, that not a single drop of water falls from its roof. If this be true, it is somewhat difficult to account for the formation of these stony icicles that hang down from the top, or the protuberances and incrustations growing at the bottom and on the sides of the grotto; so that one would wish our ingenious countryman had given us his sentiments as to the manner of their production.

IN order to go round this pyramid, one must pass under a great mass of congelations, the back part of which is hollow like the roof of an oven. The entrance into it is low; but the sides, which are whiter than alabaster, are so figured as to appear like tapestry of great beauty. From the top of the roof, just over the pyramid, hang festoons of an extraordinary length, which form, as it were, the attic of the altar. At the foot of the altar are two half-columns, the tops whereof M. de Nointel caused to be broken off, that they might serve as a table in the celebration of the mass; the memory of which transaction is perpetuated by an inscription carved by his order on the basis of the pyramid.

IN Candia, the ancient Crete, a large island in the Mediterranean belonging to the Turks, there is a subterranean maze or labyrinth*, which pervades the whole inside of a hill at the foot of mount Ida, three miles from the ruins of Gortyna. The entrance of this labyrinth is seven or eight paces broad, but so low, that a man cannot pass it without stooping. The bottom of it is very rough and uneven, but the roof is flat, being formed of beds of stone lying horizontally one upon another. Proceeding forwards through a sloping cavern, we soon meet with innumerable turnings and windings, so irregular and intricate, that if a person happen to strike into any of them out of the main path or alley, he is in great danger of being bewildered and lost. To prevent

* The reader must not imagine, that this is the famous labyrinth built by Dædalus for Minos king of Crete, which appears from antique medals to have been at Gnosus, at that time the capital of the island, but now an inconsiderable village. Diodorus Siculus and Pliny tell us, there was not, in their days, the least footstep of that labyrinth remaining.

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this, strangers seldom deviate to the right or left, but keep along the principal alley; and to find the same way back again the more easily, they scatter straw on the ground, stick up bits of paper at every turning, or take some other precaution of that nature. The chief passage is about seven feet high, and the greatest part of it is wide enough for three or four persons to walk a-breast; but in some places a man must stoop a little, and in one part he is obliged to creep upon his hands and knees to get along. It is near a mile from the entrance to the end of the labyrinth, where the grand walk divides itself into two or three branches, and terminates in circular rooms cut out of the rock, in which strangers rest themselves with pleasure.

BELONIUS, and some other authors, have imagined, that this wonderful labyrinth was originally a quarry, out of which stones were dug for the building of Gnosſus and Gortyna; but M. Tournefort, who thoroughly considered the matter, gives several strong reasons against such an hypothesis. He thinks it much more probable, that it was at first a natural cavity, which some persons had the curiosity to enlarge, by widening the passages, and taking down some strata of stone to heighten the roof; for the Cretans, he observes, were a polite people, devoted to arts as well as arms, and took delight in perfecting the rude sketches of nature. There are several other natural openings in the neighbouring mountains, and abundance of caverns in the rocks throughout the island, which seem to confirm this conjecture.

As we are not far from Santorin or Santerini, an island in the Archipelago, we think it is not improper to give some account of a new island, which rose up near it from the bottom of the sea towards

towards the beginning of the present century. This however is not the first prodigy of that kind which has appeared near Santerini, for the Great and Little Burnt Island (as they are called) were both raised out of the sea in the same manner, the first about two hundred years before the birth of our Saviour, the latter in the year 1573; and Aspronessi, or the White Island, which is a little without the bay of Santerini, emerged in the time of Vespasian. All this is occasioned by violent earthquakes and subterraneous fires *, whose dreadful

* From the same causes we imagine have proceeded those showers of ashes which have been observed to fall in the Archipelago and the Mediterranean; for several extraordinary phenomena of this kind, which have been looked upon as preternatural and ominous accidents, have, upon strict enquiry, been found owing to natural causes. Thus a bloody rain was thought to have fallen in France, which so frightened the country people, that they left their work in the fields; but M. Peiresco examining narrowly into the matter, found it was only red drops coming from a sort of butterfly which then flew about in great numbers. During a scarcity in Silesia, a rumour was spread of its raining millet-seed; but upon examination, it proved to be the seed of the ivy-leav'd speedwell, or small henbit, which grew there in great abundance. So likewise about Warminster in Wilts, it was reported to have rained wheat, but Mr. Cole found it to be only ivy berries blown thither in a considerable quantity by a tempest; and this agrees with Dr. Merret's observation, that the pretended showers of wheat are nothing but ivy-berries, swallowed and voided again by starlings and other birds. Some assert the raining of young frogs, small fishes, &c. which Dr. Derham supposes may be transported by tempestuous winds, (though they may have some other conveyance) especially considering to what distance, and in what quantities, the sea-water was carried in the great storm in 1703, of which he had the following accounts from a friend in Sussex: That a physician travelling soon after the storm, about twenty miles from the sea, plucked some twigs from the hedges, and chewing them, found them to be salt: that the grass of the Downs about Lewes was so salt, that the sheep would not feed till compelled by hunger: and that a miller, with

dreadful effects are sufficiently known in several parts of the world; of which they had an instance near Santerini in the year 1650, when the shocks of an earthquake were accompanied with a roaring noise under ground, sulphureous exhalations, an intolerable stench, and a black smoke, which rose out of the sea, mixed with flames, to a considerable height. The sea was then tossed backwards and forwards in such a manner, that it overflowed and destroyed thirty thousand perches of land in Santerini, and the air was so infected with exhalations from the fire, that twenty-five persons, and a great many beasts, were stifled. At length, when the force of the fire and earthquake had raised up a mass of earth and stones within eight or ten fathoms of the surface of the sea, a vent being opened on a sudden, the water rushed in like a torrent, and extinguished the fire, and thereby prevented the appearance of another island. History affords us several other instances of the surprizing effects of these concussions of the earth near Santerini, and particularly M. Thevenot relates, that about the year 1638, a prodigious quantity of pumice-stones was cast up from the bottom of the sea, with such noise and roaring, as resembled the discharge of artillery; inso-much that the inhabitants of Scio, which is above a hundred miles distant, imagined the Venetian and Turkish fleets were engaged. The air was likewise so filled with noxious exhalations, that many people died in Santerini, and the silver in men's pockets or chests was tarnished, even at the

with his man, attempting to secure his mill, which was three miles distant from the sea, were so washed by flashes of seawater, like the breakings of waves against the rocks, that they were almost strangled with it, and forced to give over their attempt.

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distance of Scio and Smyrna.—But to come to the account of the last new island that appeared in the Bay of Santerini, as we have it from F. Goree, who was an eye-witness of its formation.

On the 23d of May 1707, after an earthquake that happened the night before, a new island was discovered early in the morning by some seamen, who not being able to distinguish what it was, and taking it for some wreck brought thither in the night-time, rowed immediately towards it; but finding a heap of rocks and earth, instead of a floating wreck, they hastened back again, and spread the report over Santerini. How great soever the apprehensions of the inhabitants were at the first sight of this phenomenon, their surprise abated in a few days, and seeing no appearance of fire or smoke, some of them ventured to go ashore upon the new island. Their curiosity led them from one rock to another, where they found a sort of white stone that cut like bread, and very much resembled it in form, colour and consistence. They also found great numbers of oysters sticking to the rocks, but whilst they were employed in gathering them, they perceived the island move and shake under their feet, upon which they retired to their boats with precipitation. With these motions and tremblings the island every day increased, not only in height, but also in length and breadth; though now and then it happened, that whilst it was raised and extended on one side, it sunk and diminished on the other. F. Goree observed a rock rise out of the sea, about forty or fifty paces from the island, which continued four days together, when it sunk again and appeared no more; but several others appeared and disappeared alternately, which at last remained fixed and unmoved. During this time the colour
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of the surrounding sea was changed, being at first of a light green, then reddish, and afterwards of a pale yellow, accompanied with a noisome stench, which spread itself over great part of Santerini.

THE smoke appeared first on the 16th of July, not indeed from the island itself, but from a ridge of black stones which suddenly rose up about sixty paces from it, where the depth of the sea was before unfathomable. Thus for some time there were two separate islands, whereof one was called the White, and the other the Black Island, by reason of their different colour; but they were not long before they united, and that in such a manner, that these black rocks became the centre of the whole island. The smoke issuing from them was very thick, and of a whitish colour, like that of a lime-kiln; which being driven by the wind towards Santerini, it penetrated the houses of the inhabitants, but without doing much harm, the smell not being then very offensive.

IN the night between the 19th and 20th of July, flames were observed to issue with the smoke, to the great terror of the inhabitants of Santerini, especially those of the castle of Scarò, who were not above half a league distant from the burning island. This island now increased very fast, large rocks daily springing up, which added sometimes to its length, sometimes to its breadth, insomuch that the additions from time to time might easily be perceived. The smoke also increased very much, and there being no wind stirring, it ascended so high as to be seen at Candia, Naxos, and other distant islands. During the night it appeared like a column of fire fifteen or twenty feet high; and the sea at that time was covered with a scurf or froth, in some places reddish, and in others yellowish, from whence proceeded such a stench

a stench over the whole island of Santerini, that they were obliged to burn perfumes in their houses, and to make fires in the streets to prevent infection. This indeed did not last above a day or two, the froth being dispersed by a strong gale of wind; but another evil quickly followed, for the wind drove the smoke upon most of the vineyards of Santerini, whereby the grapes in one night were parched up and destroyed. It was also observed, that the smoke sullied plate and copper, and caused violent head-achs, attended with reachings.

THE 31st of July the sea was perceived to smoke and bubble near the island in two different places, where the water formed a perfect circle, and looked like oil when set upon the fire. This lasted for above a month, during which time a great many fish were found dead on the shore. The following night was heard a dull hollow noise, like the distant report of several cannon; which was immediately followed by flames of fire shooting up from the furnace to a great height in the air, where they suddenly disappeared. The next day the same hollow sound was heard several times, and succeeded by a blackish smoke, which, notwithstanding a pretty fresh gale, rose up in the form of a column to a prodigious height; and this in the night would probably have appeared as if it were all on fire.

ON the 7th of August the noise was different, resembling that of large stones thrown all together into a deep well, and the extremities of the island seemed to be in great commotion. This noise after it had lasted some days, was succeeded by another much louder, which so nearly resembled thunder, as hardly to be distinguished from three or four real claps, that happened about the same time.

time. On the 21st the fire and smoke were considerably diminished, but the next morning they broke out with greater fury than before. The smoke was red and very thick, and the heat was so intense, that all round the island the sea smoked and bubbled up in a surprizing manner. At night F. Goree, viewing with a telescope the large furnace upon the highest part of the island, discovered sixty smaller openings or funnels, all which emitted a very bright flame; and he imagined there might be as many more on the other side of the great Volcano.

THE 23d of August, in the morning, our author observed the island was much higher than the day before, and that its breadth was increased by a chain of rocks sprung up in the night-time, almost fifty feet above water. The sea was also covered again with the reddish froth above mentioned, which always appeared when the island received any considerable additions, and occasioned an intolerable stench, till it was dispersed by the wind and the motion of the waves.

THE 5th of September the fire opened itself another vent at the extremity of the Black Island, from whence it issued for several days, during which time there came but little out of the large furnace: and from this new passage it was surprizing to see the fire dart up three several times to a vast height, resembling so many sky-rockets of a glowing lively red. The following night the subterraneous thunder made a terrible noise, and immediately afterwards a thousand sheaves of fire, as it were, flew up into the air, where breaking and dispersing they fell like a shower of stars upon the island, which appeared all in a blaze, presenting to the astonished spectators at once a most dreadful and beautiful illumination. To these natural

teral fireworks succeeded a kind of meteor, which hung for some time over the castle of Scaro like a fiery sword, and increased the consternation of the inhabitants.

ON the 9th of September the White and Black islands united, after which the western end of the island daily increased. There were now only four openings that emitted flames, which came out with great impetuosity, sometimes attended with a noise like a large organ-pipe, and sometimes like the howling of wild beasts. On the 12th the subterraneous noise was very much augmented, having never been so dreadful, nor so frequent as that day and the following. The bursts of it, like a general discharge of the artillery of an army, were repeated ten or twelve times in four and twenty hours, and immediately after each clap the large furnace threw up huge red-hot stones, which fell into the sea at a great distance. These claps were always followed by a thick smoke, which spread clouds of ashes over the sea and the neighbouring islands.

THE 18th of September an earthquake was felt at Santerini, which did no great damage, but considerably enlarged the burning island, and gave vent to the fire and smoke in several new places. The claps were also more terrible than ever, and so violent, that one would have thought every house in Scaro must have been shaken to the ground; and in the midst of a thick smoke, which appeared like a mountain, one might see and hear large pieces of rock thrown up with as much noise and force as bullets from the mouth of a cannon, and afterwards fall down upon the island, or into the sea. One of the small neighbouring islands was several times covered with these fiery stones, which being thinly crusted over with sulphur

gave a very bright light, and continued burning till that was consumed.

ON the 21st of the same month, after a dreadful clap of subterraneous thunder, very great lightnings ensued; and at the same instant the new island was so violently shaken, that part of the large furnace came tumbling down, and huge burning rocks were thrown to the distance of two miles or upwards. This seemed to be the last effort of the Volcano, and to have exhausted the combustible matter, especially as all was quiet for several days after: but on the 25th the fire broke out again with still greater fury; and amongst the claps there was one so terrible, that the churches of Santerini were presently filled with crowds of people, expecting every moment would be their last, and the castle of Scarò suffered such a shock, that the doors and windows both of that and the houses flew open. Thus the Volcano continued to rage during the remaining part of the year, and the month of January 1708; the large furnace, without one day's intermission, throwing out stones and flames, at least once or twice, but oftener five or six times a day.

THE 10th of February, in the morning, a pretty strong earthquake was felt at Santerini, which the inhabitants looked upon as a prelude to greater commotions in the burning island. Nor were they deceived in their expectation; for soon after the fire and smoke issued in prodigious quantities, the claps like thunder were redoubled, and nothing appeared but horror and confusion. Rocks of amazing bulk were raised up to a great height above the water, and the sea raged and boiled to such a degree, that it occasioned a general consternation. The subterraneous bellowings were heard without intermission, and sometimes in less than a quarter

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quarter of an hour there were six or seven eruptions from the large furnace. The noise of the repeated claps, the quantity of huge stones that flew about on every side, the houses tottering to their very foundations, and the fire, which now appeared in open day, surpassed all that had hitherto happened, and formed a scene astonishing beyond description.

THE 15th of April was remarkable for the number and violence of the bellowsings and eruptions, by one of which near a hundred large stones were thrown up all together in the air, and fell again into the sea at about two miles distance. From this time to the 23d of May (the anniversary of the birth of the new island) things continued much in the same state, but afterwards the fire and smoke subsided by degrees, and the subterraneous thunders grew less terrible.

ON the 15th of July our author, accompanied by the Latin bishop of Santerini, and some other ecclesiasticks, hired a boat to take a near view of the island, and to land upon it if they found it practicable. They made directly towards it on that side where the sea did not bubble, but where it smoked very much. Being got into this vapour, they perceived a close suffocating heat, and found the water very hot; whereupon they directed their course towards that part of the island, which was farthest distant from the large furnace. The fires, which still continued to burn, and the boiling of the sea, obliged them to take a great compass, and yet they felt the air about them very hot and sultry. Having coasted round the island, and surveyed it carefully from an adjacent one, they judged it to be two hundred feet above the sea, about a mile broad, and five miles in circumference: but not being thoroughly satisfied with

this view of it, they resolved to attempt once more to land, and accordingly rowed towards that part of the island where no fire or smoke had been perceived: but when they had got within a hundred yards of the place, the great furnace discharged itself with its usual fury, and the wind blew upon them a thick smoke and a shower of ashes, which obliged them to quit their design. Having retired a little, they let down a plummet, and had ninety-five fathom water without finding the bottom, the line not being long enough. Being returned to Santerini, they observed that the heat of the water had melted most of the pitch from their boat, which was therefore grown very leaky.

FROM this time till the 15th of August, when F. Goree left Santerini, the fire, smoke, and noise continued pretty moderate; and by the accounts he received from thence for several years afterwards, it appears that the island still increased, but that the fire and subterraneous noise were very much abated: and our author supposes, as there is no likelihood that the fire will make itself a passage at the bottom of the sea, so as to let in the water to extinguish it, that the Volcano will not have an end, till the mine of sulphur that feeds it be entirely consumed *.

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* As strange as it may seem, that islands should be raised from the bottom of the sea, the instance we have here given is unquestionably true; and some are of opinion, that Santerini itself originally emerged above the waves in the same manner. Other islands have undoubtedly been rent and separated from the continent by violent storms, inundations, and earthquakes; to some of which causes perhaps our own island owes its formation: and it is observed, that the East-Indies, which abound in islands more than any other part of the world, are likewise most annoyed with tempests, lightning, volcano's, earthquakes, &c.—Varenus supposes, that St. Helena, Ascension, and other steep rocky islands,

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To this surprising phænomenon, on which we have dwelt so long, we cannot forbear adding a brief account of another in the Archipelago, which has been taken notice of in all ages, as one of the greatest wonders in nature, viz. the irregular flux and reflux of the Euripus, a famous streight, dividing the island of Negropont (anciently Eubœa) from the continent of Greece. This channel is

were formed by the sea's overflowing their neighbouring champaigns; and those of Zealand, Japan, &c. he thinks proceeded from the heaping up of vast quantities of sand and other terrestrial matters. Sumatra, Ceylon, and most of the East-Indian islands, he thinks were rent off from the main land, and concludes, that the islands of the Archipelago were formed in the same way; to which he imagines, that Deucalion's flood might possibly contribute.—But not to dwell upon conjectures, we shall add another yet more recent instance than that already given, of an island raised out of the sea by subterraneous fires, as we find it related in the Philosophical Transactions. On the 10th of December 1720, John Robinson, master of a small vessel from Piscataqua in New England, arrived at Tercera, one of the Azores; and sailing from thence December the 18th, the next day about two o'clock he made an island all fire and smoke. The following night the ashes fell on his deck like hail or snow, upon which he bore from the island, the volcano roaring as loud as great guns or thunder. At break of day he stood towards it again, and sailed round it so near, that the fire and matter it threw out had like to have done him damage; and being also in danger of driving ashore, the consternation was such, that all on board betook themselves to prayers: but a small gale springing up, carried them clear, and they stood away for Tercera. The governor there informed them, that the fire broke out in the night of the 20th of November preceding, being accompanied with a prodigious noise and an earthquake, which shattered several houses in the town of Angra, the chief of Tercera, as well as in the neighbouring villages. Vast quantities of pumice-stones and half-broiled fish were found floating on the sea for many leagues round the island, and abundance of sea-fowl hovering about it.—Having been thus particular on these extraordinary commotions of nature, we shall have occasion to say the less on the subject when we come to treat of other parts of the world.

so narrow, that the chief town of the island, called Egripos by the modern Greeks, has a communication with the main land by a stone bridge of four or five arches, and a draw-bridge just wide enough for a galley to pass through; in this part therefore the inconstancy of its tides is the most easily discerned. These tides are sometimes regular and sometimes irregular, which F. Babin, who observed them very particularly, attributes partly to the situation of certain gulphs on each side of the streight, though he allows the moon to be the principal cause. From the three last days of the old moon to the eighth of the new the tides are regular; the ninth they become irregular, and continue so till the thirteenth inclusively; the fourteenth they are irregular again, and remain so till the twenty-first, from whence they are irregular to the twenty-seventh. When the tides of the Euripus are regular, they flow twice in four or five and twenty hours, as in the ocean, and ebb as often, losing near an hour every day, and are about as long coming in as going out: but during the time of their irregularity they commonly flow and ebb nine or ten times in twenty-four hours, unless the wind blows hard, and even then six or seven; nay, our author himself, in the space of an hour and a half, saw the water change its course three times, though the wind was pretty strong against it. The tides of this channel usually rise a foot or a little more, seldom reaching to two feet; and between the flux and reflux the water seems to stand still for a short time, insomuch that feathers or straws cannot be perceived to move on its surface. From these observations of father Babin, it is easy to reconcile the authors who have written so differently on the Euripus; for those who mention no more than two fluxes

fluxes and refluxes in twenty-four hours, as in the ocean, have only observed its motion during the days of its regularity: nor have the ancients delivered a falsehood, in saying there are seven reciprocations in one day, for that happens even when the winds trouble and retard the flood; and the father assures us, that in still weather the tides sometimes ebb and flow twelve or fourteen times in the space of four or five and twenty-hours, as he himself had observed, and was told by the millers, who see their wheels change according to the course of the water *.

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* The phenomena of the tides, which are really astonishing, and have perplexed the greatest philosophers, are well explained by Dr. Halley, from the Newtonian principle of gravitation and attraction, whereby on the earth all bodies have a tendency towards its centre, and are also attracted towards the sun, moon, and other planets. If the earth were not affected by the action of the sun and moon, it is not to be doubted but the ocean, being equally pressed by the force of gravity towards the centre, would continue in a perfect stagnation, always at the same height, without either ebbing or flowing; but it being demonstrated, that the sun and moon have a like principle of gravitation towards their centres, and that the earth is within the activity of their attraction, it plainly follows, that the equality of the pressure of gravity on the earth must be disturbed, and the ocean, being fluid and yielding to the least force, shews by its rising where it is less pressed, and where it is more pressed by its sinking. Now the moon being very near the earth, in comparison of the sun and other heavenly bodies, our tides are chiefly regulated by its motions; and accordingly we observe, that the sea flows (as we call it) as often as the moon cuts the meridian, whether above or below the horizon; and ebbs when she passes the horizon, both in the eastern and western point: but as the moon is twelve hours twenty-four minutes in passing from the superior to the inferior meridian, so every tide of flood is four and twenty minutes later than the preceding one; and thus we have two fluxes and two refluxes every five and twenty hours. The high spring tides upon the new and full moons are occasioned by the attraction of the sun conspiring with that of the moon,

WE shall conclude this article with observing, that tho' the Mediterranean has no sensible tides, except some small ones in the gulf of Venice, that of the Euripus abovementioned, &c. yet a strong current continually sets into it from the ocean through the freights of Gibraltar, and likewise through the Hellespont from the Euxine and the Propontis; whence one would imagine, that instead of not swelling like the ocean, it should rather overflow its bounds, and drown the adjacent countries. What becomes of the vast quantity
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moon, whereas in the quarters the tides are weaker, because the sun raises the water where the moon depresses it, and on the contrary. The reason why the sun's attraction has no greater influence on the tides, notwithstanding he is ten thousand times bigger than the earth and moon, is owing to the very small proportion the semidiameter of the earth bears to his immense distance. It is also observed, that the equinoctial spring-tides in March and September are the highest, and the nep-tides the lowest of all others; for the nearer the moon approaches the poles, the less is the agitation of the ocean, which is greatest of all when the moon is in the equinoctial, or farthest distant from the poles; whence the sun and moon being either conjoined or opposite in the equinoctial produce the greatest spring-tides, and the subsequent nep-tides are always the least, being produced by the tropical moon in the quarters.—But besides these general tides, which would happen regularly every where, if the earth were all covered with a deep sea, there are many others in which we find a vast diversity, and not to be accounted for, without an exact knowledge of all the circumstances of the places, as the position of the land, the shallowness of the water, the narrowness of the channels, &c. for the tide is always found to set strongest where the sea is narrowest, the same quantity of water being in that case to run through a smaller passage. This is evident between Portland and Cape la Hogue in Normandy, where the tide runs like a sluice, and would be yet stronger between Dover and Calais, if it were not checked by the tide coming round the island. In short, every thing relating to the tides is to be accounted for from the Newtonian doctrine; as why lakes, such as the Caspian sea, and midland seas,
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of water thus poured into the Mediterranean, is a speculation that has long employed the philosophers. Dr. Smith accounts for it, by supposing an under current to carry off as much water as the upper one brings in; and such currents it is probable there are in several parts of the sea: but Dr Halley, without having recourse to this hypothesis, solves the phænomenon from the great evaporation. The result of an experiment made by this excellent author to find the quantity of vapour raised from the sea by the action of the sun, was this, that the thickness of water evaporated from the surface of the sea in summer, is one fifty-third part of an inch in the space of two hours; which, for the ease of calculation, being supposed only a sixtieth part, the quantity exhaled in twelve hours will be one tenth of an inch. On this principal every mile square will be found to evaporate, in twelve hours, 6914 tuns of water; and every square degree, supposed of 69 English miles, will evaporate thirty-three millions of tons. Now the area of the Mediterranean being estimated at 160 square degrees, it will lose in vapour in a summer's day 5280 millions of tons;

such as the Baltic, the Black Sea, and the Mediterranean, have scarce any sensible tides; for lakes, having no communication with the ocean, can neither increase nor diminish their water, so as to rise or fall; and seas that communicate with it by such narrow inlets, and are of such a vast extent, cannot in a few hours receive or empty water enough to raise or sink their surface in a sensible manner. To conclude, Sir Isaac Newton accounts for the strong tides in the port of Tonquin in China, (where there is but one flood and ebb in 24 hours, and none at all when the moon is near the equinoctial) from the concurrence of two tides, the one out of the great South Sea, the other out of the Indian Sea between the islands; and as the appearance of these tides are naturally deducible from his principles, it is a great argument of the truth of his whole theory.

and yet this quantity of vapour, great as it is, is only the remains of what is raised another way, viz. by the winds, which sometimes sweep off the water faster than it is exhaled by the heat of the sun. As to the quantity of water the Mediterranean receives, the Doctor supposes the Ebro, Rhone, Tyber, Po, Danube, Niester, Boristhenes, Tanais, and Nile, to furnish each of them ten times as much water as the Thames; not that any of them are in reality so great, but so to allow for the lesser rivers that fall into it: and as the Thames is computed to evacuate daily 20,300,000 tuns of water, the nine rivers above-mentioned will only evacuate 1827 millions of tuns in a day, which is little more than a third of what is raised in that time in vapour. To this vast store of vapours raised by the sun, winds, or subterraneous fires, from the sea, lakes, rivers, &c. the Doctor refers the origin of springs. This account will also serve to explain why the Caspian sea, into which many vast rivers discharge themselves, and which has no visible outlet, does not overflow its banks; and shew why the Almighty has placed spacious lakes in many other countries, at a distance from the sea. Were it not for these bodies of water that supply the clouds with rain, such countries would have no refreshing showers; the reservoirs in the hills and mountains, which gush out in springs, that uniting their streams, form rivers, would soon fail: water would be in a manner unknown; vegetation would cease, and many regions of great extent, now remarkable for their fertility, would become barren and desolate.

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FOSSILS.

THE Turkish dominions in Europe being very extensive, and the soil various, afford a great quantity of useful fossils, and some mines of the richer metals. Near Siderocapfa, a town of Macedonia, lying north east of Solonichi, mines of gold were discovered in the time of Philip, the father of Alexander the Great, from whence the town was anciently called Chrysitis. These mines are still wrought, and Martiniere tells us, the Grand Signior receives from them ten thousand ducats every month.—Argentiere, formerly Cimolus, a little island in the Archipelago, takes its modern name from its mines of silver, which were once wrought; and M. Tournefort informs us, that the workhouses and furnaces where they used to prepare the metal are still to be seen, but at present the inhabitants dare not meddle with that sort of work without leave of the Turks, who would make it a pretence for loading them with heavy taxes.—Siphanto, another island of the Archipelago, was anciently famous for its mines of gold and silver; but the places where they were are now scarce known to the inhabitants. The island however abounds with lead, according to M. Tournefort, who tells us, that about the middle of the last century some Jews came thither, by order of the Porte, to examine into the mines; but the natives, fearing they should be forced to work them, bribed the captain of the galliot that brought over the Jews to sink his vessel, which he accordingly did, by boring holes in it while the Jews were aboard, who all went to the bottom with a cargo of ore, whilst the captain saved himself in his long-boat. After this, some other Jews

were sent on the like errand, but met with no better success; for the Siphantines gave a sum of money to a French corsair to cannonade and sink the galliot when she had got her lading: so that both Jews and Turks gave over their enterprize.

DIVERS parts of Greece, and several islands in the Archipelago, abound with excellent marble, though many of the quarries so famous in antiquity are now lost or exhausted. Our countryman Mr. Wheeler mentions a Greek nonastery called Penteli, situated under a mountain of the same name, which he says is a perfect rock of white marble. Here he observed many curious grottos, lined with beautiful congelations, which are not uncommon in such places; and at a little distance he saw the quarries, from whence vast quantities of marble had been dug for the finest structures in Athens; which made him no longer doubt but this was the mountain Pentelicus, so often mentioned by Pausanias on account of its marble.—Almost every one knows how famous the island of Paros has ever been for its beautiful marble, which is more frequently taken notice of in the writings of the ancients than any other kind, and was chiefly used for statues by the most celebrated sculptors of antiquity. The Parian marble is of a firm, compact, and close texture, considerably heavy, and of a very elegant white, but generally with some admixture of a faint blueish cast, and frequently veined with blue streaks of different breadth. It is extremely bright and glittering, and capable of the brightest polish of all the marble class; which, together with its not being very difficult to cut, has made it a favourite kind among our modern as well as among the ancient statuaries. Being principally used by those artists, we now know it under the name of Statuary-Marble; and yet

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M. Tournefort affirms, that the best judges prefer the Italian to the Grecian marble, which gives false lights, and flies in little bits if not cautiously managed, whereas that of Italy obeys the chissel, being of a much finer and closer grain. To the island of Paros we are indebted for one of the noblest monuments of antiquity in the world, viz. the Arundel Marbles, which are now preserved in the university of Oxford, as was mentioned towards the beginning of this work *.

THE island of Milo is remarkable for its hot springs, and the iron, alum, and sulphur with which it abounds. The sulphur of Milo was esteemed by the ancients, being particularly commended by Pliny and Dioscorides. M. Tournefort says it is very beautiful, having a greenish shining cast, and is found in lumps by digging up the ground, and in large veins in the quarries where they get their mill-stones. There are in the island several mines of alum, the entrance into which is narrow, and the vaults or chambers scarce high enough for a man to stand upright. Here the alum grows in a sort of flakes about an inch thick, and as these are taken away, new ones in a short time supply their places. But the greatest curiosity this island affords is the Plumose or Feathered alum, so called from its form, being an efflorescence of alum, composed of strait parallel threads or fibres resembling the veins of a feather †. The pieces of this alum, in the caverns

* See Vol. I. p. 96.

† This is the true *Alumen plumosum* of the ancients, and what the Greeks called *Schiston* or *Trichitis*, from its splitting into a number of whitish hairs or capillaments. It has been strangely confounded, even by some who have professedly written on drugs, with a species of the *Lapis Amiantus*; and this stone is at present known in the shops under the name of *Alumen Plumosum*, though it has neither the taste, nor any

verns where they have rest and room enough to shoot, are found an inch and a half or two inches in length, and as thick as one's finger; and are of the same kind, but larger, with the fibrous efflorescences found on the surface of Irish slate, and other alum-ores of our own country. Besides the feathered alum, the caverns of Milo, whose roofs, sides, and floors are all of alum-ore, afford us a liquid alum, that is, a strong solution of alum in water: for the vapours sent up continually from the inner parts of the earth are condensed in these caverns into drops, which, as they fall from the roofs and trickle down the sides, wash off and dissolve the plumose efflorescences, and are collected in the cavities of the floor in little puddles, which are sometimes so highly saturated with this salt, as to be white and milky, and sometimes less sated, and clear as common water. In both cases, however, the water contains a great quantity of alum in a fluid state; and this is undoubtedly the origin of what some have supposed to be a native liquid alum. This solution is much more acrid than that of common alum; and M. Tournefort tells us, that when the natives of Milo are troubled with the itch, they go and sweat in some of their warm grottos, foment their skin with this aluminous liquor, and then wash themselves in the sea, which generally effects a cure.

one of the qualities or properties of alum. It is therefore happy for us, as Dr. Hill observes, that our physicians have forgot to prescribe the *Alumen plumosum*, since the apothecaries would certainly use the *Amiantus* instead of it; and how improper the latter must be for internal use, may be judged from its effects when applied externally, its spiculae making their way into and lodging themselves in the skin, and occasioning swellings, with the most violent and intolerable itching.

THE same ingenious author accounts for the formation of alum and sulphur in the island of Milo in the following manner. He observes, that the island is almost entirely a hollow rock, spongy, and soaked, as it were, with the salt water of the sea, which enters into a multitude of openings on the coast, and is thence conveyed to the minutest cavities. Here he supposes, the sea-salt undergoes a sort of chymical process, the subterraneous fires, which are continually burning in this island, causing an acid spirit to separate from the salt, not unlike that we draw from sea-salt by common fire. This acid gradually penetrating the hardest rocks, dissolves them, incorporates with them, and is converted into alum; in like manner as we see spirit of salt, when poured upon common stones or chalk, produces aluminous concretions. The same acid spirit, mixed with the bituminous matter that pervades the veins of the earth, occasions the formation of sulphur; for it is well known that sulphur is a fat substance fixed by an acid spirit; and the sea-water contains oily as well as saline particles, both which are strained from it by the singular structure of the interior parts of the island.

EMERY, according to M. Tournefort, is found in great plenty in the island of Naxia, where he says, they turn it up as they plough the ground, and sell a quintal of it for a crown, their quintal being a hundred and forty pounds. This mineral is extremely hard and very heavy, and the consumption is considerable amongst armourers, cutlers, smiths, glass-grinders, lapidaries, masons, and other artificers, being used in polishing and burnishing iron and steel works, and in cutting glass, marble, and precious stones. Dr. Hill
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takes it to be nothing but an iron ore, and to have a near relation to the magnet; neither of them, though usually supposed distinct natural bodies, being properly so, any more than any other of the ores of metals. It is found in masses of no determinate shape or size, and is usually of a dusky brownish red on the surface, but when broken is of a bright iron-grey, though not without some tinge of redness, and is spangled all over with shining specks, which are small flakes of talc highly impregnated with iron. Sometimes it is very red, and contains veins of gold; but this is rarely to be met with. The sort that is commonly used is found in the island of Guernsey, Tuscany, and many parts of Germany.

THE island of Argentiére (formerly Cimolus) abounds with a heavy, crumbly, whitish kind of earth or marble, the Terra Cimolia of the ancients. It is also found in other islands of the Archipelago, and generally lies either on the surface or a little below it, being moderately moist, but not at all tough or viscid. It is easily cut through with the spade, which leaves it rough and uneven, and often breaks it into rude irregular pieces. When dried it becomes of a pure bright white, and of a closer texture. It is very soft to the touch, is easily broken between the fingers, adheres firmly to the tongue, and melts readily in the mouth, but leaves a considerable grittiness between the teeth. This marle, being fattish and soapy, is used by the inhabitants of the island in washing of linen; and Pliny mentions its being used by the ancients in cleaning of cloths. They likewise used it in medicine, but it has little share in the modern practice.—What we call Cimolia alba is the white tobacco-pipe clay, from which
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that of the ancients is easily distinguished, by its want of tenacity and its alkaline quality; and to our fuller's-earth we have given the name of *Cimolia purpurascens*, whereas the ancient purple *Cimolia* was in all probability the *Steatites* or Soap-Rock, as we commonly call it, which is a hard white clay with veins of purple, not only found in the islands of the Archipelago, but plentifully in many parts of Cornwall and Devonshire.

THE Lemnian earth, so called from its being dug in the island of Lemnos, deserves to be mentioned on account of the great reputation it has had in all ages for its medicinal virtues. There are three sorts of this earth, viz. white, yellow, and red, of which the last is most esteemed. It is a heavy, close, compact earth, of a regular texture, and pale red colour; of a smooth and even surface, but not glossy; melts slowly in the mouth, and has an astringent taste, but leaves some grittiness between the teeth; does not stain the hands, nor break readily between the fingers. As this earth is found no where but in Lemnos that we know of, so the true medicinal red sort is only dug out of one pit, in which it constitutes the lower stratum, lying underneath the yellow. This pit is opened only once a year, and that with great solemnity, the Greek priests rehearsing some forms of prayer, at which all the considerable inhabitants of the island, both Greeks and Turks, are present. At that time they take out as much as they think sufficient for the year's demand, the greatest part of which is sent to Constantinople to the Grand Signior, with whose seal it is marked; and the rest is sold to merchants upon the spot, partly sealed, and partly unsealed; but those who buy it rough generally get it sealed before they offer

fer it to sale. That sealed in the island has usually some Arabic characters upon it, and on the other we often find a crescent and three stars, the inscription *Terra Lemnia*, and under it two palm-branches: but notwithstanding this and other earths are generally imported to us sealed, they are liable to many adulterations, and none of them more so than the Lemnian, which is so often counterfeited and sophisticated, both here and by the Turks themselves, that few people, except those who have seen it dug out of the pit, are able to discover the imposture.—This earth yields a small quantity of volatile urinous salt, of another not much different from sea-salt, and of a bituminous oil; so that it is not a mere dead earth, endued with no other quality but that of an absorbent, as some of the moderns have imagined. It is good in dysenteries, diarrhœas, and hæmorrhages; is an admirable diaphoretic, and useful in malignant fevers.

THERE is another kind of earth called *Turkey Earth*, which is sometimes sold instead of the Lemnian, but it is not of so compact a texture, though it is considerably heavy. It breaks easily between the fingers, and is reddish on the surface, but more of an ash-colour within. Great plenty of it is dug in the neighbourhood of *Adrianople*, and it is used by the Turks as a sudorific and astringent, and is famous among them in pestilential diseases.

WE might here enumerate several other fossils of the like nature, but we apprehend the reader would not thank us for enlarging on so insipid a subject; and therefore we shall only add, another which *Mr. Wheeler* tells us is dug out of a hill near *Thebes*, in the road that leads to *Negropont*. This is a stone, as he calls it, (perhaps a kind

kind of clay) which, when first taken out of the pit is of the colour of new cheese, and almost as soft, but when it is dry, it becomes very hard, glossy, and as white as snow. The people of Thebes carve this stone very curiously into bowls for tobacco pipes, the best of which are sold for five-pence or six-pence a-piece, and a worse sort at about half that price.

VEGETABLES.

AMONGST the many curious plants to be found in the Turkish dominions, which afford the botanist a very ample harvest, none seems to deserve our attention more than the *Tragacantha*, or Goat's-Thorn, which grows plentifully in several parts of the Levant, and particularly on mount Ida in Candia. The gum we corruptly call Gum Dragon, issues spontaneously from this plant towards the end of June and the two following months, at which time the nutritious juice, thickened by the heat, bursts the vessels that contain it; and being coagulated into small threads, these make their way by little and little through the bark, are hardened in the air, and formed either into lumps or slender pieces twisted like worms, of different lengths, according to the quantity of extravasated matter. The contraction of the fibres of the plant, M. Tournefort supposes, may contribute to the expression of the gum; for these delicate fibres, like those of flax, being laid bare and trampled under foot by men and beasts, are shrivelled by the heat, and facilitate the emanation of the extravasated juice.—This gum is of different colours, some white, some greyish, some red, and some almost black; but that which is white, clear, smooth, and twisted like worms, is reckoned

reckoned the best. Externally used it is efficacious in a dysentery, and dissolved in milk or rose-water is good for the redness and acrimonious humours, affecting the eyes, and for asperities of the eyelids. It is of service in a hoarseness, spitting of blood, and the strangury; and four or six grains of it, exhibited in milk or water, are effectual against voiding of blood by urine. It is also reckoned strengthening in seminal weaknesses.

THE island of Candia likewise affords plenty of the *Cistus ladanifera*, (the *Ledon* of Dioscorides) a shrub yielding an odoriferous sort of gum called *Ladanum*, which oozes out of the leaves like a fatty dew, in shining drops, as clear as turpentine. This shrub is full of branches, and rises to the height of two or three feet, bearing a flower an inch and a half in diameter, consisting of five rose-coloured leaves, marked with a yellow speck in the middle. From the centre of these leaves arise a great many yellow threads or chives, which surround the pistil; and when the flower is gone the pistil is changed into a fruit or cod, containing abundance of small angular seeds, of a red colour, and disposed in five different vessels or apartments. The chief branches of this shrub are about the thickness of one's little finger, and are divided into sprigs, bearing leaves that grow by couples, of a dark green, and waved at the edges. The gum issuing from the *Cistus* is gathered in hot calm weather, in the months of July and August, by brushing it off the leaves with a sort of whip, composed of a great number of lashes or straps, to which the *ladanum* sticks when they are dragged over the shrub, and from whence it is afterwards scraped and made up into a mass or cakes of different sizes. Dioscorides tells us, that in his time they used to comb
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off the ladanum from the beards and thighs of the goats which fed upon the leaves of the Cistus; but it is now gathered in the manner above-mentioned, as M. Tournefort relates, who saw the country people employed about it, and says, the work is rather unpleasant than laborious, as it must be done in the heat of the day, and when there is no wind stirring, and yet the purest ladanum is not free from filth, because of the dust blown upon it in windy weather. Besides this, to increase its weight, they have a trick of mixing it with a fine blackish sand; which cheat is discovered by chewing it, or straining it after it is dissolved.—This gum mollifies, digests, matures, and attenuates; and externally applied is good against the tooth-ach, heartburn, hysteric fits, and pains of the stomach. In dysenteries and hoarseness it is an excellent balsamic.

WE have another gum obtained from a plant called *Panax Herculea*, a sort of All-heal, which grows plentifully in Achaia, Boeotia, and other parts of Greece, and may be seen in the gardens of the curious. From incisions made in the stem of this plant, especially near the root, during the summer-months, a juice flows which concretes spontaneously, and is called in the shops *Opopanax*. If good, it is externally of a yellow colour, but internally white, or somewhat inclining to yellow, of a bitter taste, a strong smell, and pinguious consistence.—As to its virtues, it mollifies, digests, discusses flatulencies, and purges thick and viscid phlegm from the brain, nerves, joints, and thorax. The roots are also said, by those who import them, to be effectual in all cold affections of the brain and nerves, disorders of the breast, and violent pains of the stomach; for obstructions of the viscera, and diseases of the womb, bladder

der and kidneys; on which account they are of service in inveterate pains of the head, vertigo, epilepsy, lethargy, convulsions, palsies, asthma, jaundice, and dropfy.—This is one of the celebrated Panaceas of the ancients, to which they attributed such wonderful virtues.

WE ought not here to omit taking notice of a very useful production of the vegetable kind, viz. the Cotton-Bush, which is an annual plant, cultivated in Greece, and in several of the islands of the Archipelago, as well as in many parts of Asiatic Turkey, the East-Indies, and other countries. This plant grows as high as a rose-bush, has leaves like maple, and puts out yellow flowers, which leave behind them little cods, that increase as they ripen to the size of a walnut, and being opened by the heat of the sun, discover a down of exceeding whiteness, which is the cotton. The down encompasses several little beans, which are the seeds of the plant, and are separated from the down by a sort of mill, which being worked by the motion of a wheel, the cotton falls on one side, and the seed on the other. There is also another kind of cotton-plant, called by botanists *Gossypium herbaceum*, which creeps along the ground as the vine would do if unsupported; and the cotton of this is the most esteemed.—Cotton makes a considerable article in commerce, being spun and manufactured into stockings, waistcoats, quilts, tapestry, curtains, and various other conveniences. Muslins are made entirely of cotton, and it is frequently mixed with wool, silk, and flax, in the composition of other stuffs. Abundance of cotton grows about Smyrna, from whence ten thousand bales are annually exported, and as much at least is spent in the manufactures of the country.—As to the medicinal virtues of cotton, the

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the seeds of it are reckoned good in disorders of the kidneys and liver, but prejudicial to the head and stomach. They are also esteemed excellent for a cough or difficulty of breathing, and are serviceable in the stone and dysentery; for by their lenitive quality they obtund the acrid and exulcerating humours. The oil expressed from the seed removes spots of the skin, and cures running sores of the head; and they are likewise said to restrain immoderate fluxes of the menses. The wool burnt and reduced to powder is sometimes put into wounds to stop the effusion of blood*.

ANIMALS.

THERE is a great variety of the feathered species which frequent the islands of the Archipelago and the coasts of Greece, but none of them more remarkable than a sort of sea fowl called Toubana by the modern Greeks, and thought by M. Spon to be the *Onocrotalis* of Pliny. This bird is what we call a Pelican, and is described by Sir George Wheeler, who took one of them near Lepanto, to be as big as a swan, (but its neck not so long) web-footed, and of a greyish colour, like a common goose. It has a beak seventeen or eigh-

* It is observed that cotton applied to wounds, instead of linen, produces an inflammation. M. Leewenhoeck, examining into the reason of this with a microscope, found its fibres to have each two flat sides; whence he concluded, that its minute parts have two acute angles or edges, which being not only more thin and subtile than the globules whereof the fleshy filaments consist, but also more firm and stiff, they hurt and wound the globules of the flesh, and cut the new matter that approaches them; and that with the more ease, as this matter, not having attained the firmness and consistence of flesh, is the less able to resist their attacks: whereas the linen ordinarily used in wounds, being composed of little round parts, very close to each other, form larger masses, and is thus incapable of injuring the fleshy globules.

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teen inches long, and about two inches broad where widest; but when it opens, the under part of the beak, being of a flexible nature, expands itself to the breadth of five or six inches. To this beak, near the entrance of the throat, is joined a bag of a skinny substance, which, when it is empty, and the bird's mouth shut, shrinks together like a bladder before it is blown, and is scarce to be seen; but when filled it stretches to an incredible bigness, so as to contain ten or a dozen quarts of water. In these bags (as the Greeks informed our author) the pelicans carry fish and water to their young ones in the mountains where they breed, for which purpose they chuse the most unfrequented places. The throat of this fowl is large enough to swallow a carp twelve inches long; and the upper part of its beak terminates in a sharp hook, which perhaps is of service to it in catching fish, on which it chiefly subsists. Its gizzard is not a round fleshy substance, like that of other fowls, but somewhat harder than the guts, about six inches long, and above an inch in diameter. Its lungs are of a membranous texture, sticking fast to the ribs on each side, and of a reddish colour.—The pelican is said to live to a great age; and some say there are two sorts of pelicans, the one feeding on fish, (which is that here described) the other a land fowl, feeding on venomous creatures.

SIR George Wheeler has likewise given us a description of a Tree-Frog, or Spordaca, as the Greeks call it, which he says is shaped like other frogs, but something smaller, and of a deep green colour. When it lies close to the ground, it resembles one half of a large walnut with the convex part uppermost; for then its feet are so doubled underneath it as not to be discerned. In nature,

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ture, however, it is very different from the common frogs; for whereas these love to be always amongst the grass or in the water, this kind delights to climb shrubs, bushes, and trees, and to sit chirping on the twigs and branches. For this purpose nature has made a peculiar provision, its toes ending in little round knobs, about the bigness of a pin's head, out of which issues a clammy substance, that often preserves it from falling when it leaps from one bough to another; for if it can but touch the smallest twig, or the smoothest leaf, with any one of its feet, it sticks fast to it by that viscous matter, and surprizingly recovers its whole body. This may seem incredible, but our author observed it very often, and could not perceive that the frog held by grasping with its feet, as birds and squirrels do, but merely by the strength of the glutinous substance discharged from its toes; which, however, we must suppose it can emit or retain at pleasure, or else it would prevent its leaping as well as falling. This creature, when put into the water would swim like other frogs, but never offered to dive, and made all possible haste out of that cold element.

As mount Hymettus in Greece was always famous for its excellent honey, the ancients imagining that bees were first bred there, and that the swarms dispersed over the world were only colonies from that mountain, we think this will be no improper place to give some account of those curious insects, so remarkable for their sagacity and œconomy, and whose labours are so advantageous to mankind.—With respect to their form, the bee is divided by two ligaments into three parts or portions, the head, the breast, and the belly. The head is armed with two jaws and a trunk, the former of which play like two saws,

ing and shutting to the right and left. The trunk is long and taper, and extremely pliant and flexible, being destined by nature for the insect to probe to the bottom of flowers through all the impediments of their chives and foliage, and drain them of their treasured sweets. But were this trunk to be always extended, it would prove incommodious, and be liable to be injured by a thousand accidents: it is therefore of such a structure, that, after the performance of its necessary functions, it may be contracted, or rather folded up; and besides this, it is fortified against all injuries by four strong scales, two of which closely sheath it, and the two others, whose cavities and dimensions are larger, encompass the whole.— From the middle part or breast of the bee grow the legs, which are six in number; and at the extremity of the paws are two little hooks, discernible by the microscope, which appear like sickles with their points opposite to each other. The wings are four, two greater and two smaller, which not only serve to transport them through the air, but, by the noise they make, to give notice of their departure and arrival, and to animate them mutually to their several labours. The hairs, with which the whole body is covered, are of singular use in retaining the small dust that falls from the chives of the flowers, of which some think the wax is formed, as will be observed hereafter.— The belly of the bee consists of six rings, which slide over one another, and may therefore be lengthened or contracted at pleasure: and the inside of this part of the body contains the intestines, the bag of honey, the bag of poison, and the sting. The office of the intestines is the same as in other animals. The bag of honey is transparent as crystal, containing the sweet juices
extract.

extracted from flowers, which the bee discharges into the cells of the magazine for the support of the community in winter. The bag of poison hangs at the root of the sting, through the cavity of which, as through a pipe, the bee ejects some drops of this venomous liquor into the wound, and so renders the pain more excessive. The mechanism of the sting is admirable, being composed of two darts, inclosed within a sheath that tapers into a fine point, near which is an opening to let out the poison. The two darts are ejected thro' another aperture, which, being armed with several sharp beards like those of fish-hooks, are not easily drawn back again by the bee; and indeed she never disengages them, if the wounded party happens to start, and put her into confusion; but if one can have patience to continue calm and unmoved, she clinches those lateral points round the shaft of the dart, by which means she recovers her weapon, and gives less pain to the person stung. The liquor, which at the same time she infuses into the wound, causes a fermentation, attended with a swelling, which continues several days; but that may be prevented by immediately pulling out the sting and enlarging the puncture, to let the venomous matter have room to escape.

LET us now consider the generation, polity, and labours of these insects, the true knowledge whereof is very much owing to the modern invention of glass-hives, through which all the secrets of the community are laid open to a curious observer. Any person who carefully examines a hive, at different seasons of the year, will distinguish three sorts of bees; of which the far greater number are the common working bees, who do all the business of the hive, and seem to be neither male nor female. The second sort, called

Drones, are the males; which are somewhat larger, have no sting, nor ever stir from the hive, but live upon the honey prepared by the others. The third sort is a much larger and longer-bodied bee, of which there is often but one in a hive, at least but one in every swarm or colony of young bees, who are from time to time detached from the hive in search of another habitation. This large bee is what the antients called the King, from the respect they always saw paid to it by the other bees; but being the female, the moderns more properly give it the title of Queen or mother of the swarm.

MR. Reaumur, desiring to try how far the accounts given of the homage paid by the others to the queen-bee was true, caused a swarm of bees to be swept down into a glass-hive. Among these there was one female. She was soon distinguished by her shape, and the shortness of her wings. For a while she walked alone at the bottom of the hive; the rest seeming to regard nothing but their own safety. The female, after going twice or thrice up the sides of the hive, to the top of it, where they were hung, at last going in among the cluster, brought down about a dozen with her. Attended with these, she walked along slowly at the bottom of the hive. But the rest continuing at the top, she went again and again, till they all came down and formed a circle about her, leaving her a free passage wherever she turned to walk, and feeding her with the honey they had gathered for themselves.

WHILE the hive is sufficient to contain the bees without inconvenience, the society live peaceably together; but when their numbers are multiplied so that their habitation is too small, the young brood quit the place of their nativity, (as

we have just hinted) and fly in quest of a new settlement. The swarm that goes out consists of the common bees, under the conduct of one female or queen; or if two queens come out of the same hive, then the body of common bees divides into two parts, each following one female: both parties, however, when they alight out of the air, usually settle near each other on a branch of a tree; and then those bees which form the smallest swarm go off, one by one, to the other cluster, deserting the queen they followed, who is at length murdered by her subjects. The swarm being thus united and hanging down from the tree, the countryman, who is always vigilant on these occasions, provides for their accommodation a hive rubbed with balm, thyme, and other odorous herbs, into which he gently brushes them from the branch, and carries them to a stand prepared for that purpose. All this the bees bear very patiently, and after they are a little composed, begin to think of forming themselves convenient apartments in their new habitation.

WHEN they set about this work, it is observed they divide themselves into four bands, one of which is destined to the fields to provide materials for the structure; the second works upon these materials, and forms them into a rough sketch of the dimensions and partitions of the cells; the third band examines and adjusts the angles, removes the superfluous wax, polishes the work, and gives it its necessary perfection; and the fourth is employed in bringing provisions to the labourers. M. Maraldi takes notice, that the bees employed in polishing the combs work longer than those that build them, because polishing is not so laborious. They begin their work at the top of the hive, continuing it downwards to the

bottom, and from one side to another; and to make it the more solid, they use a sort of tempered wax, which is pretty much like glue. The form of the cells of the honey-comb is hexagonal, which figure, besides what is common with a square and equilateral triangle, has the advantage of including a greater space within the same surface *.

THE expedition of the bees in their labour is almost incredible; for, notwithstanding the elegance and just proportions of the work, they are so indefatigable, that in one day's time they will finish a honey-comb a foot long and six inches broad, capable of receiving three thousand bees. When the cells are compleated, the queen takes possession of those she likes best to deposit her eggs in, and the rest are left to be filled with honey. She lays one egg in each cell, and sometimes more than a hundred in a day; but what is most remarkable, as some affirm, she lays those eggs which are to produce common bees in cells of the common shape and size, those that are to become drones or males in larger cells, and in two or three great cells of a circular form, she deposits those which are to be females like herself. These eggs, having lain a short time in the cells, are hatched into white maggots, and are fed with honey for ten or twelve days, after which the other

* The best mathematician, as Dr. Derham observes, could not have chosen a more proper figure than the bees do for such a combination of apartments. Circular cells indeed would have been the most capacious; but this would by no means have been a convenient figure, because much of the room would have been taken up by vacancies between the circles. It was therefore necessary to make use of some of the rectilinear figures, amongst which the only proper ones were the triangle, the square, and the hexagon; and the bees (says Pappus Alexandrinus) wisely chose that figure which consisted of most angles, as supposing it the most capacious.

bees

bees close up the cells with a thin piece of wax ; and under this covering they become gradually transformed into bees, in the same manner as silk-worms are into butterflies. Having undergone this change, the young bees pierce through their waxen doors, wipe off the humidity from their little wings, take their flight into the fields, rob the flowers of their sweets, and are perfectly acquainted with every necessary circumstance of their future conduct.—As to the males or drones, which are destined only to propagate their species, they live very comfortably for about three months after they are hatched ; but when that time is over, and the females are impregnated, the common bees either kill them or drive them from the hive as burdensome to the community, and not a drone is to be found till the next season.

THE method in which the bees collect their wax and honey deserves to be a little explained. At the bottom of all flowers there are certain glands which contain more or less honey, that is, the most exalted particles of the sugary juices of the plant. These juices the bee sucks up with its proboscis or trunk above-mentioned, and draws it into its mouth ; and when it has thus taken a sufficient quantity into its stomach, it returns to the hive, and discharges the honey into the common magazine. When the cells prepared to receive it are full, the bees close up some with wax till they have occasion for the honey ; the rest they leave open, to which all the members of the society resort, and take their repast with a very instructive moderation *.

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* It is an excellent observation of a modern author, that the hive is a school to which numbers of people ought to be sent: prudence, industry, benevolence, publick-spiritedness,

NATURALISTS have generally supposed, that the fine dust of the Apices of flowers, collected amongst the hairs of the bee, which nature seems to have cloathed it with for that purpose, was afterwards converted into wax; and some of the moderns, as well as the ancients, have imagined wax to be the excrement of this laborious insect: but the judicious Boerhaave takes it to be a juice issuing from the leaves of plants, and adhering to their surface, where it is inspissated by the heat of the sun, as may be seen in rosemary by the help of a microscope. This the bees collect with their fore feet and jaws, and roll up into little balls, which they convey, one at a time, to the feet of their middle legs, and from thence to the middle joint of their hind legs, where there is a small cavity, like a spoon, to receive the burden. When those bees who are employed in collecting the wax return to the hive, they are assisted by oeconomy, neatness, and temperance, are all visible among the bees. These little animals are actuated by a social spirit, which forms them into a body politick, immediately united, and perfectly happy. They all labour for the general advantage; they are all submissive to the laws and regulations of the community; having no particular interest, no distinction, but those which nature or the necessities of their young have introduced amongst them. We never see them dissatisfied with their condition, or inclinable to abandon the hive in disgust, at finding themselves slaves or necessitous. On the contrary, they think themselves in perfect freedom, and perfect affluence; and such indeed is their real condition. They are free, because they only depend on the laws; they are happy, because the concurrence of their several labours inevitably produces an abundance, which contributes to the riches of each individual. Let us compare human societies with this, and they will appear altogether monstrous. Necessity, reason, and philosophy, have established them for the commendable purposes of mutual aid and benefits: but a spirit of selfishness destroys all; and one half of mankind, to load themselves with superfluities, leave the other destitute of common necessities.

their

their companions in discharging their load, who by little and little pick off the wax from their legs, and carry it to the common treasure. With this they build their combs, observing a wonderful frugality, not the least grain of it being wasted or neglected.

THUS, as a modern author observes, their indulgent Creator has given them all implements necessary, either for building their combs, or composing their honey. They have each a portable vessel, in which they bring home their collected sweets: and they have the most commodious store-houses, wherein they deposit them. They readily distinguish every plant, which affords materials for their business: and are compleat practitioners in the arts of separation and refinement. They are aware, that the vernal bloom and summer sun continue but for a season. Therefore they improve to the utmost every shining hour, and lay up a stock sufficient to supply the whole state, till their flowery harvest returns.

ALMOST every one knows the great and various uses of wax and honey, the consumption whereof, throughout the several parts of Europe, is incredible; and if honey were more used than it is, instead of sugar, it would be found of excellent service. Being very penetrating and deterging, it is good in all obstructions, especially from viscid and tough humours. It wonderfully promotes expectoration; nor is there any disorder arising from phlegm, or the produce of a cold constitution, in which it is not serviceable. If eaten overnight upon a toast, or dissolved in any warm liquor, it greatly helps those who are troubled with thick phlegm in a morning. But it is to be observed, that there is a peculiarity in some constitutions, which renders them incapable of bear-

ing the least quantity of honey, without gripes, vomitings, and great uneasiness. In surgery, it is used to cleanse foul ulcers, either by immediate application, or washing them with liquors in which it has been dissolved.

CONSIDERING therefore the advantages arising from the labours of bees, is it not strange that our country-people are not more solicitous about the preservation and increase of these animals? It is certain they would multiply prodigiously with proper management; and we might, upon a moderate computation, have five thousand times as much wax and honey produced in this kingdom as we have at present. But instead of taking due care to keep them warm in winter, and to supply them with a sufficient quantity of food, we suffer vast numbers to perish annually; and still greater numbers we destroy, with the loss of an immense future progeny, by smothering whole swarms in the hive, in order to obtain the honey. Our neighbours the French and Dutch have found out a method to prevent this destruction; and it is surprizing, that no more notice has been taken of what Sir George Wheeler relates concerning the management of bees in Greece, which certainly deserves the consideration of our farmers, as such a practice (or something of the like nature) would evidently tend to their very great emolument.

THE Greek bee-hives (that traveller informs us) are made of willows or osiers, and shaped like our common dust-baskets, being wider at the top than at bottom, and plastered with clay both within and without. Across the top of the hive they lay broad flat sticks, covering them with clay and straw to secure them from the weather. To these sticks the bees fasten their combs, so that they may be taken out whole, one by one, with the
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greatest ease imaginable. In March or April, to prevent the bees from swarming and flying away, they separate with a knife the sticks to which the combs are fastened, taking out those on each side, and placing them in the same order in another hive, till they are equally divided. Then having furnished each hive with more sticks, and covered them over as before, they set the new hive in the place of the old one, removing that to a neighbouring stand. This is done in the middle of the day, when the greatest part of the bees are abroad; who, at their return home, divide themselves without much difficulty, some taking to the new and others to the old habitation. In August they take out the honey after the same manner, that is, separating the sticks on each side, and taking away the combs, till they have left only such a quantity in the middle, as they judge sufficient for the support of the bees in winter; brushing those on the combs into the hive again, and covering it afresh with sticks and plaster. This is also done in the day-time, when most of the bees are absent from the hive, and are therefore least disturbed themselves, and give their plunderers the least disturbance. By this means the bees being not destroyed, as is the custom in England when we take the honey, increase and multiply prodigiously, and make their masters ample amends for the little honey they leave them to feed upon in the winter. Besides, our author is of opinion, that the smoke of the sulphur used to destroy the bees, diminishes the fragrancy of the wax, and cannot communicate any good flavour to the honey*.

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* This is the account Sir George Wheeler gives of the management of bees at a Greek monastery on mount Hymettus,

ANTIQUITIES.

THE remains of antiquity to be met with in that part of the Turkish dominions we are now surveying, especially in Greece and some of the neighbouring islands, are almost innumerable, and many of them too insignificant to be mentioned; but we shall endeavour to give a description of such as have chiefly engaged the attention of travellers, beginning with those of Constantinople, the capital of the Ottoman empire.

THE Hippodrome, or Place for Horse-races, is a famous square in that city, now called Atmeidan by the Turks, which is almost a translation of its ancient name, At in their language signifying a Horse, and Meidan a Place*. It is still of the

tus, which is celebrated for the best honey in all Greece, and from whence a great quantity is sent to Constantinople. The same author mentions another monastery called Pendeli, not far from Hymettus, which in his time was under the protection of the sultaness mother, and the monks were obliged to pay upon that account six thousand weight of honey every year to a new mosque which she built at Constantinople, and to furnish it with as much more at the price of five dollars the quintal. He adds, that these good fathers have seldom less than five thousand stocks of bees, with a great deal of arable land, vineyards, plantations of olive-trees, herds of cattle, flocks of sheep, and all other conveniences their manner of life requires.

* According to M. Tournefort, this place is put almost to the same uses it was originally, for on Fridays, when the service at the mosques is over, the Turkish youth, well dressed and mounted, assemble together to exercise themselves in feats of horsemanship. They divide themselves into two companies; and, on a signal given, one starts from each end, riding full-speed with a long kind of dart in his hand. Each throws his dart at his adversary, and the other endeavours to avoid it; in which consists the excellency of the performance. Their horses are very swift, and the riders manage them with wonderful dexterity and address.

same

same dimensions as it was formerly, viz. about four hundred and fifty paces in length, and a hundred in breadth; but of all its fine ornaments, there are now only two remaining. The first is an Obelisk of granite or Thebaic marble, of one single piece, about fifty feet high, terminating in a point, and charged with hieroglyphicks now unintelligible; a proof, however, of its being very ancient, and wrought in Egypt. It stands on four little brazen pillars, upon a pedestal eight or ten feet high, on which are two inscriptions, the one in Greek, the other in Latin, importing, that the emperor Theodosius caused it to be set up again, after it had lain upon the ground a considerable time; that the engineer who undertook this task was named Proclus, and that he completed it in two and thirty days. Each side of the pedestal is likewise adorned with curious bas-reliefs, one of which, on the north, represents the workmen and machines whereby the obelisk was raised, and also the obelisk itself, both upright and lying upon the ground. Another range of sculptures below represents the Hippodrome as it was formerly, with two obelisks, two men on horseback, and several people on foot. On the south side of the pedestal are carved four chariots, two of which are drawn by a pair, and the other by four horses, with each of them a driver; and on the same side are twenty or thirty figures clothed in gowns, with others in a fighting posture, armed with bucklers. On the east side is represented a promiscuous company of men and women, dancing and playing upon musical instruments of several kinds; and higher up are two ranges, whereof little appears but the heads, which were probably intended for the spectators. The west side is adorned with figures in a suppliant posture,

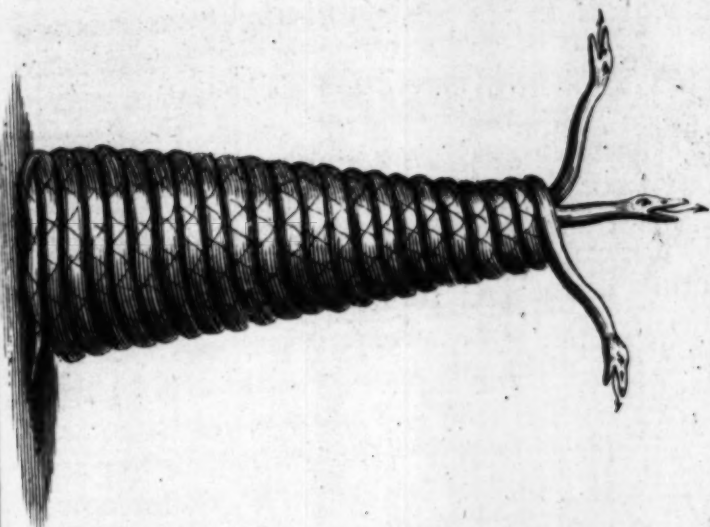
posture, making presents to the emperor Theodosius, who is seated on a throne, with his two sons Honorius and Arcadius, and attended by his nobles.—This obelisk had formerly on the top of it a brazen pine-apple, which was thrown down by an earthquake, as we are informed by Nicetas, in his life of St. Ignatius, patriarch of Constantinople.

AT the opposite end of the Hippodrome there is another obelisk, consisting of several pieces of white marble, and raised upon a pedestal of the same; but when Sir George Wheler saw it, in 1675, the top of it was broken off, and the rest looked ready to fall. M. Tournefort, who was at Constantinople in 1700, gives the same account of this obelisk, and adds, that it was formerly covered with plates of brass, which he supposes were adorned with bass-reliefs and other ornaments, an inscription on its base representing it as a very wonderful work, and made still more beautiful by the emperor Constantine, the son of Romanus.

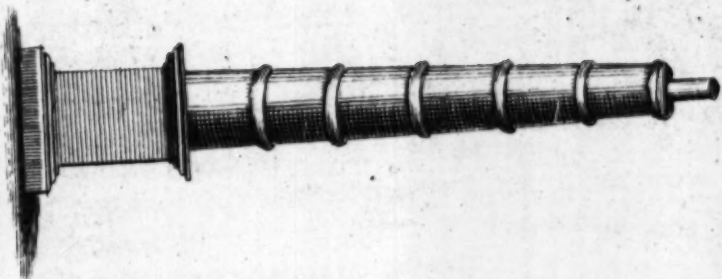
BETWEEN the two obelisks we have been describing stood a pillar of brass, about fifteen feet high, representing three serpents twisted spirally round each other like a roll of tobacco, the wreaths diminishing gradually from the base to the top, where the heads of the serpents parted different ways, bending outwards in a triangular form. In the year 1700 the pillar was thrown down, and the heads broken off and carried away; and some years afterwards the pillar itself was removed, but what is become of it we are not able to say.—The history of this column is very uncertain; but there is great reason to suppose, with M. Tournefort, that it was brought originally from Delphos, where it served to support the famous golden tripod of Apollo. Sir George Wheler conjectures, that

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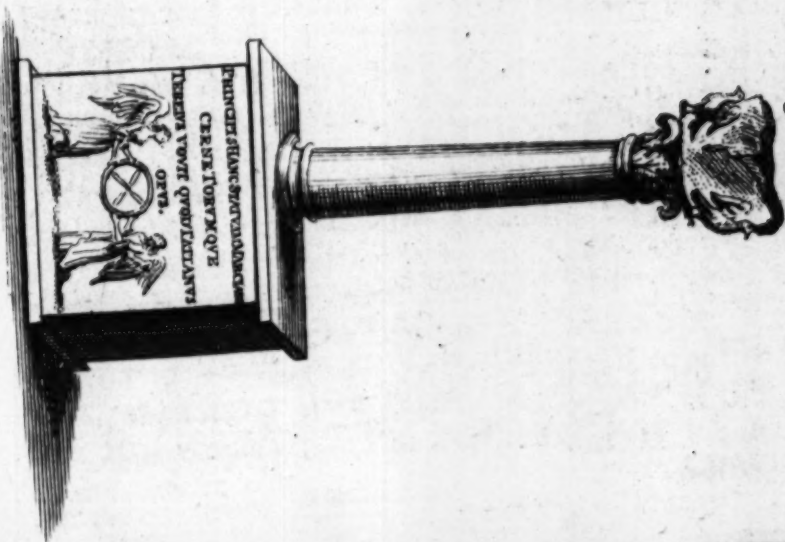
The Serpentine Pillar.



The Porphyry Pillar.



The Pillar of the Emper' Marcian.





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it was anciently placed on the top of the obelisk last described.

IN the great street leading to Adrianople, stands the Burnt Column, as it is now called, being so black and scorched by the frequent fires that have happened near it, that one can scarce discover what it is made of: upon a narrow inspection, however, it appears to be composed of several pieces of porphyry, the joints whereof are bound about with rings of brass. It is raised upon a square marble pedestal, every way four yards broad, and six yards high; and towards the top of it there is a Greek inscription, implying, that this admirable piece of workmanship, being ruined by time, was erected anew by the emperor Manuel Comnenus, who reigned in the twelfth century. This pillar is supposed to have been brought from Rome by Constantine the Great, who caused a beautiful brazen statue of Apollo to be placed upon it, and called by his own name; which statue, according to history, was either struck down by lightning, or blown off and demolished, several persons being dashed to pieces by its fall. In a word, the column, though very ancient, has not suffered so much by length of time, as by fires, storms, and earthquakes.

IN a part of the city, lying south from the Hippodrome, stood, till about fifty years ago, the Historical Pillar, so called, because it was covered with bass-reliefs from top to bottom, representing the victories of the emperor Arcadius. The conquered towns were denoted by the figures of women, whose heads were crowned with towers; and amongst them the emperor appeared sitting in a kind of elbow-chair, with two angels over his head, supporting the Labarum or standard of the christian emperors. The sculptures were much better

better than most performances of the same date, that is, in the declension of the Roman empire. The horses in particular were finely done; and the artist had taken pains to make the figures appear of an equal bigness to the eye at all the distances, those near the top seeming just as large as those at the bottom. This column was of plain white marble, but blackened and disfigured by fires as well as the former. It was a hundred and forty-seven feet high, and had a pair of winding stairs within it, but so much broken and decayed, that they were entirely useless.

THERE is another monument of antiquity which was scarce taken notice of before Sir George Wheeler, who discovered it in a private court-yard about half way between the Hippodrome and Adrianople gate. It is a pillar erected to the emperor Marcian by Tatianus, as appears from an inscription on the pedestal, who was undoubtedly the same that assured Marcian, when he was only a private soldier, that he should live to be advanced to the imperial throne; and the event having verified the prediction, he made Tatianus governor of Constantinople. This column is of granite, and has an urn of white marble on the top of it, wherein Marcian's heart was probably deposited; and it is supposed a statue of that emperor was placed upon the urn, as the above-mentioned inscription seems to intimate.

LET us now take a view of the antiquities of Athens, which are still very numerous, notwithstanding the havock that time and barbarous ignorance has made amongst them. That which claims our first attention, is an ancient temple of Minerva, now a Turkish mosque, which is all built of white marble, and is perhaps the most beautiful piece of antiquity now in being. It is about two hundred
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Temple of Minerva.

Temple of Mars.

Temple of Venus.



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and eighteen feet in length, and ninety-eight in breadth; and has on every side an ascent of five steps, that seem contrived as a basis to the portico, which is supported by channelled pillars of the Doric order, running all round the temple. These pillars are forty-six in number, two and forty feet high, and seventeen feet and a half in circumference. The front and frieze round about the temple were charged with historical figures of admirable workmanship, many of which were standing about a hundred years ago.—The back front of this temple was adorned with figures representing the contest between Neptune and Minerva, about naming the city of Athens; but they are likewise all fallen down. The architrave was also charged with bas-reliefs, cut in squares at several distances, which represented the wars of the Athenians, particularly their victory at Marathon, and that over the Gauls in Mysia. Within the portico we see a range of sculptures, which are undoubtedly as ancient as the temple itself, and of excellent workmanship, representing sacrifices, processions, and other ceremonies of the heathen worship. This, like other Pagan temples, was almost entirely dark within, having no other light but what came in at the doors; but there is now a window at the east end of it, which was made by the Greek christians when they were in possession of it, and used it for divine service. Towards the bottom of this window there are several stones, which admit through them a yellowish light, and have been represented as miraculous, and said to shine in the dark, but are in reality only a kind of transparent marble*.—As to the founders of this beautiful temple,

* This is the sort of marble, as Sir George Wheler observes, which Pliny calls Phengites; and the temple of Fortune,

temple, the body of it was built by Pericles, to which Attalus added the magnificent portico: but the emperor Adrian most probably repaired it, and adorned it with the figures on each front; for the whiteness of the marble, and that emperor's statue among the figures, plainly shew those sculptures to be of a later date than the temple itself.

NOT far north from the temple of Minerva stands that of Erechtheus, which is a sort of double building, as Pausanias describes it, through the lesser part whereof we enter into the larger. The roof of the large building is supported by channelled Ionic pillars, but the capitals seem to be a mixture of the Doric and Ionic orders.—On the south side of Minerva's temple are some ancient ruins, with some statues of women in the walls, which Dr. Spon imagined to be the Graces. They are cloathed, indeed, contrary to the usual manner of representing those deities; but that the Graces were not always represented naked, appears from Pausanias, who has described their statues and temple.

DESCENDING from the Acropolis or castle, in which are the antiquities already mentioned, we come to the remains of the theatre of Bacchus, the ancient seats whereof are ruined; but where they were, and their distance from each other, may still be discerned. The front towards the sea has best escaped the injuries of time; for there are three rows of arches remaining, one above another; but the semicircular area below the seats,

tune, built by Nero, was of this stone, which by its transparency supplied the want of windows, so that the inside received light enough, even when the doors were shut. It was anciently found in Cappadocia, but it is far from being peculiar to that country, very beautiful pieces of it having been found in Derbyshire, as well as in France and Germany.

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and the scene, (or that part of the theatre assigned for the actors) are almost filled with the ruins of the rest of the building. The whole structure was of white marble, and anciently adorned with the statues of Menander, Euripides, Sophocles, and Æschylus, their most celebrated dramatic writers. At a little distance from the theatre, the foundations of some arches are to be seen, supposed to be the remains of the portico of Eumenes, where the actors got their plays by heart, and the citizens used frequently to walk for the sake of the air and conversation *.

In the side of the rock whereon the castle stands, there is a little church, or rather grotto, the front whereof is adorned with three marble pilasters of the Corinthian order, sustaining an architrave of the same, with a sedent figure on the top of it without a head, and several Greek inscriptions, from whence it is supposed to have belonged to a Gymnasium, or to have been a monument erected in honour of such as had been victors in the gymnastic exercises, which were wrestling, running, throwing the quoit, and several others, contributing either to the preservation of health, the defence of the body, or mirth and recreation.

To the south-east of the castle are yet standing seventeen beautiful columns of the Corinthian order, called Adrian's pillars, as being thought to be the remains of that emperor's palace, which was probably the greatest ornament of Athens when the structure was entire. They are of admirable white marble, above fifty feet high, in-

* From their disputing as they walked under the porticos of the Lyceum at Athens, the disciples of Aristotle were called Peripateticks; and from Zeno's teaching under a portico or piazza, which the Greeks call Stoa, his followers obtained the name of Stoicks.

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cluding the capitals and bases, and about eighteen in circumference. It appears, however, from a view of the place, that there were originally six rows of them, twenty in each row, which supported a portico of surprizing beauty and magnificence, inclosed within a cloister, wherein were divers little rooms, whose cielings were of alabaster gilt, and the whole adorned with fine statues and paintings.—Pausanias likewise mentions an excellent library collected by Adrian, and a Gymnasium bearing his name, of which there are no footsteps to be seen; but there are some remains of an aqueduct begun by that emperor, and finished by Antoninus Pius, as appears from an inscription on an architrave supported by two Ionic pillars*.

JUST without the city stands the temple of Theseus, another noble monument of antiquity still remaining, which, as to its matter, form, and order of architecture, exactly resembles that of Minerva. With respect to the workmanship, it may be deemed a master-piece; nor is it easy to be paralleled, much less exceeded, by any other structure. Within the portico, at the west end, there is a bass-relief, representing the battle of the Centaurs; and at the east end there seems to be a continuation of that history: there are likewise several figures of women, which Mr. Vernon takes to be Pirithous's bride, and the other ladies who attended at the wedding. On the outside of the portico, in the spaces between the

* Aqueducts were not common at Athens before the times of the Romans, the want of them being supplied by wells, some of which were dug by private persons, and others at the public expence. At present the town is well furnished with water, brought by aqueducts under ground from the rivers Ilissus and Eridanus, and conveyed to many private houses, as well as to common fountains.



Temple of Theseus at Athens.

Engraved by J. Smith

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triglyphs, are represented several feats of Theseus, particularly in wrestling, where all the locks and postures of that art, in which he excelled, are admirably well expressed. He is also exhibited as encountering bulls, bears, and other monsters: but time has pretty much injured many of these figures, the temple having been built soon after the battle of Marathon, when the Athenians, under the conduct of the brave Miltiades, gained so signal a victory over the Persian army, that is, almost five hundred years before the birth of our Saviour.

THE Tower of Andronicus, or Temple of the Eight Winds, is yet standing at Athens, and is worth a traveller's observation. It is an octogonal structure, on each side of which is a winged figure representing one of the winds, with the name wrote over it in Greek capitals; and underneath these figures, only separated from them by a frieze, are so many sun-dials, accommodated to the different sides of the tower. The roof of the building consists of little planks of marble, broad at bottom, but meeting all in a point at top, so as to form a kind of pyramid of more than thirty sides; on the summit whereof there was formerly a brazen Triton, with a switch in his hand, pointing to the quarter from whence the wind came; but this weather-cock is long since destroyed. The figures are of excellent workmanship, each expressing the nature of the wind it is intended to represent.

IN the south-west part of Athens stands a beautiful little structure, commonly called the Lanthorn of Demosthenes, on account of a tradition, that the orator shut himself up there in order to pursue his studies without interruption, having first cut off one half of his beard, the more effectually

usually to restrain himself from appearing in public; but the real design of this piece of antiquity will best appear by considering its form and ornaments. It is a round edifice of white marble, only six feet in diameter within, and shaped so much like a lantern, that it is no wonder it has obtained that name. The roof is sustained by six fluted columns of the Corinthian order, nine feet and a half high; and the space between the columns is taken up with pannels of marble, of one stone from the top to the bottom. The frize above these columns consists of one circular stone, and another entire stone forms the roof or cupola, which is carved so as to resemble scales lying one over another, and crowned with a sort of stem like the socket of a candlestick, (as Sir George Wheler represents it) or rather (as Mr. Vernon) like a plume of feathers. On the frize are beautifully represented in relievo several of the labours and exploits of Hercules, as is judged from some of the figures being clothed with lions skins. There is also an inscription on the frize, which gives some reason to conjecture, that this fabric was a temple dedicated to Hercules, by those who had been victors in the public games. Be this as it will, it appears from the same inscription to be of great antiquity, and to have been built above three hundred and thirty years before the birth of our Saviour.

SOME remains of the Odeum, or Music-theatre, built by Pericles, are still to be seen, being the foundations of a semicircular structure, about a hundred and forty paces in diameter. Within the area there is a square elevation five or six feet high, with steps to the top of it; and on each side are several seats or stone-benches, supposed to have been intended for the musicians. From these seats, however, Sir George Wheler seems rather to think

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this was the place where the senate or court of the Areopagus used to assemble, which was so famous for its antiquity, and the justice and impartiality of its decrees*.

THERE are several other noble monuments of antiquity to be seen at Athens, particularly the remains of a Stadium built by Lycurgus, and enlarged by Herodes Atticus; which was of such a stupendous bigness, according to Pausanias, that it looked like a mountain of white marble. Very little of the stone-work is at present remaining, but its form and dimensions are yet to be discerned.—Adrian's gate, and part of the temples of Augustus and Jupiter Olympius, are worth the attention of the curious.—To these we might add many inscriptions, bas-reliefs, and things of the like nature, which our design does not require us to set down or describe; but if the reader has a taste that way, we refer him, for a more particular account of the Athenian antiquities, to Sir George Wheler and other travellers.

* The time of the institution of this tribunal is not known, some referring it to Solon, and others carrying it as high as Cecrops; nor are authors agreed as to the reason of its name, or the number of persons of which it was composed. Its reputation was certainly very great, not only in Greece, but among foreign states, and even among the Romans themselves, who often submitted their most difficult causes to its decision. This assembly sat in the open air, as was anciently the custom in all courts of judicature that had cognizance of murder; partly because it was unlawful for the accuser and criminal in such cases to be under the same roof; and partly that the judges, whose persons were reckoned sacred, might not be polluted by conversing with such heinous malefactors. They also heard and determined causes in the night-time, that they might be the less diverted from their attention to the business in hand; and all pleadings before them were to be simple, without exordium, digression, or peroration,

AT Corinth, and about the neighbouring Isthmus, so famous for the solemn games there celebrated by the ancients *, some remains of antiquity are yet to be discovered, but none so entire as those we have been describing. Our countryman just mentioned takes notice of very few in Corinth itself, and the chief of those are only ten or eleven pillars standing upright, which, from their situation, he judged to have supported the portico of some temple. They are of the Doric order, fluted, and of a common hard stone; but their proportion seems to vary considerably from the rules of the ancients, their circumference being eighteen feet, and their height not much above twenty. On the north side of the market-place there is also a heap of ruins of brick-work, supposed to be either part of a temple, or of a Roman bath.—At mount Oneius, on the Isthmus, are to be seen the ruins of the town, of the Isthmian theatre, and of several stately temples and other edifices mentioned by Pausanias; and in many places one may discern the foundations of the walls built by the Lacedæmonians from one sea to the other, to prevent the incursions of their enemies. They were repaired by the Venetians when they were in possession of the Morea, but they have been since destroyed.

* The Isthmian games, in honour of Neptune, were solemnized every fifth year with incredible magnificence, and drew together a prodigious concourse of spectators from all parts of Greece. The victors were at first rewarded with garlands of pine-leaves, but afterwards with a wreath of parsley, which was also the reward of the Nemean conquerors; whereby the institutors of those games undoubtedly intended to intimate, that honour only, not mean and sordid interest, should be the motive of great actions and undertakings.

LET

LET us now leave the Continent, and survey the antiquities to be met with in the island of Delos, which was famed among the ancients for being the birth-place of Apollo and Diana. In this island was a magnificent temple dedicated to Apollo, which is now a vast heap of ruins, lying in such a confused manner, that it is impossible to determine so much as the form of that structure. Amongst these ruins are the remains of a colossal statue of Apollo, which has lost its head, arms, and feet; and the rest of it is broken into two pieces, the one consisting of the belly and thighs, the other of the back and shoulders. The back is two yards broad, and the other parts proportionably large; so that M. Tournesfort imagines it was placed on the frontispiece of the temple; and appeared no bigger than the life, from whence one may judge of the height of that edifice. This statue appears to have been an admirable piece of sculpture, the rings of hair falling down the shoulders being particularly beautiful. A large piece of marble, fifteen feet and a half long, ten feet nine inches broad, and two feet three inches thick, is to be seen among the ruins, which was undoubtedly the plinth of this gigantic statue, an inscription upon it, shewing that it was dedicated to Apollo by the people of Naxos.—Not far from the statue Sir George Wheeler found half the body of a woman, the drapery whereof was carved so well, that it seemed to be the work of no less a master than the former. Just by this he saw the body and fore part of a Centaur, on which the sculptor had so well displayed his skill, that life and vigour appeared in every vein and muscle. The head and neck of a horse, part of the figure of a woman, and several fragments of lions, are also found in these noble ruins, which in general

consist of huge pieces of broken columns, architraves, bases, capitals, &c. all mingled together in the utmost disorder and confusion.

AT a small distance from the ruins of this temple lie those of a portico, which from an inscription appears to have been erected by Philip king of Macedon, and consists of columns and architraves truly magnificent. These architraves have escaped breaking and carrying away, being incased into the tops of the columns, which are angular towards the base, and channelled upwards, composed of several pieces, and of the Corinthian order. Each architrave is one foot eight inches deep, ten feet in length, and two and a half in thickness, and the largest diameter of the columns is two feet four inches.

ABOUT three hundred paces from this portico we come to the remains of a beautiful marble theatre, whose circumference is five hundred feet, and its diameter, including the steps, two hundred and fifty. Just before the opening of the theatre there are eight or nine vaults in a row, separated from each other by a wall, in which there is a little arch, serving for a passage from one to another. Dr. Spon imagined them to have been a kind of cisterns or reservoirs of water, but it is more likely they were to keep lions and other wild beasts in, which used to be baited in the theatres of the ancients. These cellars were not arched over, but covered with huge pieces of marble cut like beams, with proper openings to let in the light, and to bring the animals in and out.

NEAR the foot of mount Cynthus, which runs almost cross the island, we find the remains of a temple, as they are supposed to be, viz. nine pillars of marble disposed in a circle, three standing upright, and six fallen to the ground. This temple

ple

ple had a mosaic pavement, and underneath these columns most beautiful vaults have been discovered.—This mountain is steep and craggy, consisting of little else but a kind of greyish marble; and Sir George Wheler imagines, that the way up the mountain (which is deep, broad, and winding) was originally a quarry from whence the marble was dug, it resembling many quarries he afterwards saw in Attica. On the top of the hill are to be seen the foundations of a citadel which commanded the whole island; and all the way up, on each side of the road, it appears to have been formerly adorned with temples, porticos, or other structures, as the foundations of walls, and a vast number of columns, pedestals, architraves, and other fragments of excellent marble, sufficiently demonstrate.

IN another part of the island not far from the sea, there are still standing six or seven pillars of granite, which the people of the neighbouring islands (for Delos is not inhabited) call the School, from a tradition that there was anciently a Gymnasium in that place. Between twenty and thirty columns are lying upon the ground near those which are standing, most of them nine or ten feet high, but of different diameters, and seem to have supported a square structure; but that it was a Gymnasium is not very likely, though probably there was one in the island.

ABOUT a hundred paces from this supposed Gymnasium we see an oval basin, almost three hundred feet long and two hundred broad, lined round with a wall as high as its banks, which is faced with a thick cement proper to contain water. This is thought to have been a Naumachia, or place for naval exercises; for though we have not the positive testimony of ancient authors, that they

they used to represent sea-fights at Delos, the bason seems evidently intended for that purpose *. We must not imagine that large vessels were used on these occasions, but such as were suitable to the dimensions of the place, and the depth of the water.

ON a little eminence near this bason lie the ruins of some stately temple, if we may judge from the number of marble columns, half fluted and half pannelled, about two and twenty inches in diameter; and more especially from the fragment of an altar found amongst them, adorned with festoons, bunches of grapes, and heads of oxen. The upper part of this altar is somewhat hollow, proper for the burning of incense; and by this cavity we may distinguish altars from the pedestals of statues. These altars are frequent in Delos, and in the adjacent island of Rhénia †.

THE remains of another noble structure are to be seen at that end of the bason which faces the temple of Apollo. A vast number of pillars appear to have formed a square as broad as the lesser diameter of the bason; and perhaps sustained a portico built by Dionysius Eutyches, an architrave and altar with that prince's name being found very near these ruins. Some of the columns are yet standing, but most of them are fallen down and broken to pieces. There are plain ones of twen-

* M. Tournesfort informs us, that this bason is now half filled up with earth, and that the rain-water settled in it was briny and almost bitter; which seems to argue that the cavity was formerly filled with sea-water, (as is supposed) the salt and slime whereof still remain there in great quantities.

† In Rhénia (which is also called the Greater Delos) M. Tournesfort says, he counted, to his great surprize, above a hundred and twenty altars; most of which were cylindrical, three feet six inches high, and near three feet in diameter, adorned with festoons, and the heads of rams or oxen.

ty inches diameter, and others of eighteen cut in pannels, both intermixed with huge pillars of that granite, with which mount Cynthus abounds.— From this portico to the Little Port of Delos there is nothing but fragments of marble columns, altars, &c. which have such an appearance of magnificence, that they are probably the ruins of Latona's temple.

By this time we imagine the reader is pretty well tired with viewing the monuments of antiquity, and yet we could not forbear enlarging a little on so copious a subject; but we shall now shift the scene, and give him a prospect less ruinous and melancholy, of some of the noblest structures in the European part of the Turkish dominions.

BUILDINGS.

THOUGH the Turks affect nothing grand in the structure of their private houses, yet their mosques or temples, and other publick buildings, are extremely magnificent. The royal mosques in particular, of which there are seven so called, are very beautiful and stately edifices, and are usually the first that engage the attention of a stranger after his arriyal at Constantinople. These buildings appear to much more advantage than many of our finest churches, which (in London especially) are often so closely surrounded with houses and tradesmen's shops, that there is no room to view them at a proper distance; whereas the mosques of Constantinople stand single, within spacious inclosures, planted with trees and adorned with fountains. The domes, it must be granted, are well executed in most parts of Turkey, especially those of the mosques, which are of an exact proportion, and accompanied with

other smaller cupolas, which set them off to the eye, and give them a noble and majestic appearance. The slender steeples or pillars called Minarets, which are somewhat like the Monument in London, terminating in small spires with gilded crescents on the top of them, are also a great ornament to their mosques, as well as to their cities, many of them being very tall, and works of surprizing boldness.

THE principal of the royal mosques, and one of the noblest structures in the world is that of St. Sophia, which is advantageously situated on an eminence in one of the best and finest parts of Constantinople. It was formerly a Christian church, having been built in the sixth century by the emperor Justinian; and though the Turks have now converted it into a mosque, it still retains its ancient name. The length of this edifice is a hundred and fourteen paces, and its breadth eighty, having in the front a portico twelve yards wide, supported by marble columns, which in the time of the Greek emperors served for a Vestibulum, where such persons were appointed to stand as were about to receive the sacraments, or undergo publick penance. This portico has a communication with the church by nine stately folding doors, the leaves whereof are brass, and adorned with fine bass-reliefs; and on the middlemost some figures of mosaic work are still to be discerned. Another portico, parallel to this, has only five brazen doors without bass-reliefs, but formerly charged with crosses, which the Turks have defaced. The greatest part or body of the mosque is covered by a dome of admirable structure, at the foot of which runs a colonade, sustaining a gallery ten yards broad, which, when the Christians were masters of it, was set apart for

for the women ; and over this are two smaller galleries, supported by columns and arches of excellent workmanship, answering to those below. The dome is said to be an hundred and thirteen feet in diameter, and is built upon arches supported by vast pillars of white marble. The incrustations of the gallery are mosaic, mostly done with little cubes of glass, which by time are continually loosened from their cement, but their colour is fresh and unchangeable. The form of the dome is that of a hemisphere or half-globe, and it is illuminated by twenty-four windows placed round it at equal distances. It was adorned by four cherubims and other figures, which have been defaced by the Turks, who do not admit of any imagery or painting in their mosques. On the east side of this vast cupola is a demi-dome, which was the sanctuary or chancel of the Christians ; and here is now a niche, wherein the Turks keep their Koran, which may be looked upon as the Mahometan Bible, containing the revelations, doctrine, and predictions of their pretended prophet. This niche is in that part of the dome which stands towards Mecca, and the niches in all their mosques are placed in the same manner ; for that way the Mahometans always turn their faces when they say their prayers. At a little distance from the niche is the Mufti's chair *, raised on several steps ; and on the side of it is a kind of pulpit, where certain

* The Mufti is the high-priest or patriarch of the Mahometan religion, being the sovereign interpreter of the Koran, and the oracle of their law, to whom the last appeal is generally made in cases of importance. He takes place of the bashaws, and his authority has been often terrible to the Grand Signior himself. It is he that girds on the sword to the Grand Signior's side, which ceremony answers to the coronation of our kings.

prayers are repeated by persons appointed for that purpose. — It is thought the Turks have pulled down some parts of this edifice since they took it from the Christians; instead of which, however, they have added four of those tall slender minarets before-mentioned. Every royal mosque has at least two minarets; and one of them has six; but the ordinary mosques have seldom more than one. About the middle of these, on the outside, there are usually three balconies or galleries, one above another, to which the Imaums (as the Turks call them) ascend by stairs within, and with a shrill singing tone give notice to the people to come to their devotions.

THE mosque just described is generally represented as the noblest building in Constantinople; yet the lady Wortley Montague observes, that there are others still more beautiful. That of Sultan Solymán is an exact square, with four fine towers in the angles. In the midst is a noble cupola, supported by fine marble pillars, and two smaller at the end, supported in the same manner. The pavement and gallery round the mosque are of marble. Under the great cupola is a fountain adorned with pillars of such beautiful colours, that they seem to exceed nature. On one side is the pulpit of white marble, and on the other a little gallery for the Sultan, which is ascended by a fine stair-case with gilt lattices. At the upper end is a kind of altar, where the name of God is written; and before it stand two candlesticks, five or six feet high, containing lofty wax candles. The windows are larger and better disposed than those of St. Sophia. The pavement is spread with fine carpets, and the mosque illuminated with a vast number of lamps. The court leading to it is very spacious, and encompassed with galleries, supported

supported by columns of green marble; and on two sides, covered with twenty-eight cupolas, with a fine fountain in the middle. In all the mosques are little chapels, where are the tombs of the founders and their families; and behind this structure are the tomb of Solyman the Second, by whom it was founded, and that of his Sultana. Solyman's tomb is covered with a rich piece of embroidery brought from Mecca; and at the head of it is placed a tuft of feathers, adorned with precious stones. This mausoleum is illuminated with seven large tapers, and a great number of lamps kept continually burning.

THE mosque of Sultan Achmet, now called the Atmeidan mosque as being near the Hippodrome, is so beautiful and magnificent, that it merits a particular description. It stands in the middle of a large square court, about twice as long as broad, on each side whereof is a range of low buildings, covered with a great many small cupolas, which have a very pleasing effect. From this court we pass into a square cloister adjoining to the western end of the mosque, having a piazza supported by ancient marble pillars of various colours, and also covered with little domes. This inner square is beautifully paved with marble, and has an hexagonal fountain in the middle of it, covered likewise with a cupola of gilded wire. At the entrance of the mosque is a portico sustained by stately columns of marble, and folding-doors of brass admit us into this noble edifice. The great dome stands upon four channelled pillars of white marble, which Sir George Wheler says are seventy of his spans in circumference; and to this are joined four half cupolas of the same diameter with the dome, but much lower. At each corner there is also a smaller dome, and

six tall minarets contribute much to the grandeur and beauty of the structure. The domes are covered with lead, and adorned at the top (as well as the minarets) with gilded globes and crescents, the symbol of the Ottoman empire*.—As to the ornaments of this mosque within, they are much the same with those of other mosques, viz. balls of ivory, globes of crystal, lustres, and the like, which make a glittering show when the lamps are lighted at their evening service.

THE Validea, so called from its foundress Valida, the mother of Mahomet the Fourth, is another majestic edifice, which seems to exceed the other mosques in the delicacy of its architecture. It has a square court before it, like the inner one of Achmet's, with a fountain in the middle of it, and a piazza running round it, sustained by beautiful columns of marble, most of them fetched from the ruins of Troy or Alexandria, particularly two of jasper, which are placed at the entrance of the mosque, and are admirably well polished and proportioned. The arches of the doors and windows are well designed, and the walls and pillars within are faced with blue and white tiles, like those used in our chimneys. This mosque has two minarets, and each of these is encompassed

* The crescent was the symbol of the city of Byzantium, (now Constantinople) which the Turks have only adopted. The device is of great antiquity, as appears from several medals, and took its rise from an event related by Stephens the geographer, a native of Byzantium. He tells us, that Philip, the father of Alexander the Great, meeting with mighty difficulties in carrying on the siege of that city, set workmen in a very dark night to undermine the walls, that his troops might enter the place without being perceived, but, luckily for the besieged, the moon appearing, discovered the design, which accordingly miscarried. In acknowledgment of this deliverance, the Byzantines erected a statue to Diana, and thus the crescent became their symbol,

with three handsome galleries, which are finely illuminated on occasions of public rejoicing. The lady Wortley Montague observes, that this is the largest of all the mosques of Constantinople, the size being prodigious; that it is the most beautiful structure she ever saw; and that St. Paul's cathedral at London would make but a pitiful figure near it.

It is needless to describe the rest of the royal mosques of Constantinople, which are built much after the same model as those already mentioned; and the ornaments of all the mosques are of the same kind, only differing in number, costliness, and beauty.

THE mosque of Sultan Selim I. at Adrianople, is a building well worth the curiosity of a traveller. This structure is advantageously situated in the midst of the city, and in the highest part of it, whence it is seen to great advantage on every side. The first court has four gates, and the innermost three; both of them surrounded with cloysters, with marble columns of the Ionic order, finely polished, and of very lively colours. The whole pavement is of white marble, and the roof of the cloysters divided into several domes, with gilt balls on the top. In the midst of each court are fountains of white marble, and before the great gate of the mosque is a portico, with columns of green marble, and five gates. The mosque is covered by one prodigious dome of a vast extent. It has four minarets of a prodigious height, gilt on the top, from whence the Imaums call the people to prayers. To each of these towers there is but one door, which leads to three different stair-cases, rising to the three different stories of the minaret, in such a manner, that three priests may ascend and descend without meeting each

other. The lady just mentioned, who was, perhaps, the only Christian ever permitted to enter the inside of this noble mosque, says, it has two rows of galleries, supported by columns of red and white marble, with marble balustrades; the pavement is also marble, covered with fine Persian carpets. The walls are beautifully encrusted with Japan china, in flowers of the most lively colours. In the middle hangs a vast lamp of silver, gilt, and about two thousand of a smaller size, which must have a glorious effect when all are lighted. Under the large lamp is a great pulpit of carved wood, gilt, and just by it a fountain to wash. In one corner is a little gallery, enclosed with gilded lattices, for the Sultan, and at the upper end is a large natch, nearly resembling an altar, raised two steps, and covered with gold brocade. Before it stands two silver gilt candlesticks, the height of a man, and in them wax-candles, as thick as a man's waist.

AT Salonichi, the capital of Macedonia, there are no less than forty or fifty mosques, some of which are very stately structures, particularly that which was formerly a Christian church dedicated to St. Demetrius. This church, according to Paul Lucas, is supported by noble columns of marble, jasper, and porphyry; and underneath it he says there is another church equally beautiful, but he was not allowed to see it, because women were employed there in working of silk. The pavement of the upper church is of mosaic work, and in this and the lower building they reckon upwards of a thousand columns. F. Coronelli says it has three naves, supported by abundance of magnificent pillars.

WHAT has been said will give the reader a sufficient idea of the Turkish mosques, and therefore

we need not mention any more, but proceed to a description of the Seraglio, or palace of the Grand Signior at Constantinople. This palace and its gardens form a sort of triangle about three miles in compass, two sides whereof are washed by the sea, and the third is separated from the city by a high wall. The palace stands upon an eminence, and the gardens lie below it towards the sea, which are filled with groves of ever-greens, not only for the sake of their lasting beauty; but that the ladies of the seraglio, when they are walking, may not be seen by the neighbouring inhabitants. Mahomet the Second was the founder of this palace, which may now be looked upon rather as a collection of palaces and apartments added one to another, according to the taste and humour of the succeeding emperors. The materials of which it is composed are rich, but the architecture is not answerable. The principal entrance into the seraglio is a huge pavilion of marble, called Capi, the Gate, or Port; from whence some imagine the name of Porte has been applied to Constantinople, but rather, perhaps, by way of eminence, from its admirable port or harbour. This gate is very lofty, having a semicircular arch, and beneath the bend of it there is an Arabic inscription, expressing, that it was erected by the above-mentioned Mahomet. Here is a guard of fifty men, who have seldom any other weapon than a white wand or staff, and let you pass quietly into a large court-yard, not near so broad as long; on the right whereof are infirmaries for the sick, and on the left are lodges for the servants employed in the meanest offices of the seraglio. In this court there is likewise an old building with a dome over it, supposed to have been formerly a Christian temple, or part of St. Sophia; but the distance makes the
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last conjecture improbable. — Through another large gate we enter a second court, where there is also a guard of fifty porters, without arms as well as the former. This is a very handsome square, with several fountains in the midst of grass-plots, which are surrounded with trees, and the walks are paved with marble. Round the court runs a low piazza, covered with little cupolas, supported by a great number of marble columns; underneath which the Janizaries range themselves when foreign ambassadors are admitted to audience, and on other solemn occasions. On the right hand are several kitchens, which are handsome buildings, with cupolas over them, that have holes made in them to let out the smoke. One of the kitchens is for the Grand Signior, another for the favourite Sultana, a third for the ladies of the seraglio, and the rest are for the commandant of the gates, the ministers of the Divan, the Grand Signior's pages, the officers of the palace, the women servants, &c. who all together make up a very numerous family *. On the left hand is the Grand Signior's treasury, and a stable for his saddle-horses; over which are kept his bridles, saddles,

* Numerous indeed they must be, if the accounts be true which travellers give us of the provisions they consume. Motraye tells us, he was assured by some of the cooks belonging to the seraglio, that they spent yearly no less than thirty thousand oxen, twenty thousand calves, sixty thousand sheep, sixteen thousand lambs, ten thousand kids, a hundred thousand geese and turkeys, the same number of pigeons, and two hundred thousand fowls, besides vast quantities of fish, especially turbot, of which sort only they used a hundred and thirty thousand. Tournefort's account is somewhat different, who says, they do not provide much wild-fowl, but besides forty thousand oxen annually consumed, the purveyors are to furnish daily two hundred sheep, a hundred lambs or goats, ten calves, six hundred hens and pullets, two hundred pigeons, and fifty geese.

housing,

housing, &c. which are extremely splendid, being enriched with jewels and embroidery. At the farther end of this court is the hall of the Divan, which is a large but not lofty building, wherein councils of state are held, and the Grand Visier (assisted by his counsellors) determines all causes, civil and criminal, without appeal.—Beyond this hall no strangers are admitted, except ambassadors, who pass on to the hall of audience, which is of amazing magnificence, for there the Sultan receives them on a throne almost covered with pearls and precious stones. The furniture is answerable to the magnificence of the hall, the cieling and sides whereof shine with gold and azure, and are adorned with paintings after the Persian manner.

WE shall not attempt to describe the interior parts of the seraglio, into which it is impossible for a stranger to gain admittance, without running the risque of paying dear for his curiosity. Some travellers indeed relate, that they have found opportunities of seeing the most private apartments of this palace, and tell us a thousand amusing stories, which favour more of romance than truth, and can never gain credit, but amongst the inconsiderate and injudicious part of their readers. But we think it is better to be silent about matters of such uncertainty, as it cannot be expected we should give an account of those forbidden recesses, where the ladies of the seraglio are reserved for the entertainment of the Sultan, and into which none are admitted but himself, or the black eunuchs, who have the care of those beauties. We have only to observe farther of this famous palace, that, notwithstanding it is only a vast cluster of buildings, joined together without any manner of order, yet it has something pleasing in its irregularity,

they, and, take it all together, is answerable to the greatness of its matter.

WE may however safely add, that all who live in the seraglio are the Sultan's slaves, as indeed are all the subjects of his empire; for they acknowledge, that whatever they enjoy proceeds from his bounty, and that their estates and lives are absolutely at his disposal. The lady we have so often mentioned observes, that the government is entirely in the hands of the army; for the Grand Signior, with all his absolute power, is as much a slave as any of his subjects, and trembles at the frown of a Janissary. Here is indeed a much greater appearance of subjection than amongst us: a minister of state is not spoke to but upon the knee; should a reflection on his conduct be dropped in a coffee-house (for they have their spies every where) the house would be razed to the ground, and perhaps the whole company put to the torture. Here are no huzzaing mobs, senseless pamphlets, and tavern disputes about politics. When a minister here displeases the people, he is dragged by the Janissaries even from his master's arms. They cut off his head, hands, and feet, and throw them before the palace gate, while the Sultan, to whom they all profess an unlimited adoration, sits trembling in his apartment, and neither dare defend nor revenge his favourite.

A GREAT number of incredible accounts have been given by authors, of the manner in which the Sultan and his ladies live in the seraglio; but it is evident, even from their own writings, that they had no possible means of coming at the knowledge of what they describe. The right honourable lady we have so often quoted, on visiting the Sultana Hestien, the favourite of the late emperor Mustapha, took that opportunity of learn-

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ing all she possibly could of the seraglio, and was assured, that by that Sultana the story of the Sultan's throwing a handkerchief to the lady he was pleased to honour with his embraces, is no other than this. He sends the kyller-aga, or chief of the black eunuchs, to signify to the lady, the honour he intends her; on which she is immediately complimented upon it by the others, and led to the bath, where she is perfumed and dressed in the most magnificent and becoming manner. The emperor precedes his visit by a royal present, and then enters her apartment. Neither is there any such thing as her creeping in at the bed's feet. Sometimes the Sultan diverts himself in the company of all his ladies, who stand in a circle round him. And she confessed, that they were ready to die with envy and jealousy of the happy she, whom he distinguished with any appearance of preferment. But this seemed to me, says our author, neither better nor worse, than the circles in most courts, where the glance of the monarch is watched, and every smile waited for with impatience, and envied by those who cannot obtain it.

In order to give the reader an idea of the magnificence of the buildings of the great, we shall give a description of one of a Grand Vizier, who was killed at Peterwaradin, and which he built to receive his royal bride, the daughter of a late Sultan, as we find it described in the letters of the learned lady Wortley Montague, who observes, that it is seated on one of the most delightful parts of the canal, with a fine wood on the side of a hill behind it. It is of a prodigious extent, and is said to contain eight hundred rooms, all adorned with a profusion of marble, gilding, and the most exquisite painting of fruit and flowers. The windows are all lashed with the finest glass brought from

from England; and here is all the expensive magnificence that can be supposed in a palace founded by a vain luxurious young man, with the wealth of a vast empire at his command. But no part of it pleased our ingenious author, better than the apartments destined for the bagnios. There are two built exactly in the same manner, answering to each other; the baths, fountains, and pavements all of white marble, the roofs gilt, and the walls covered with Japan china. Adjoining to them are two rooms, the uppermost of which is divided into a sofa; and in the four corners are falls of water from the very roof, from shell to shell of white marble, to the lower end of the room, where it falls into a large bason, surrounded with pipes that throw up the water as high as the room. The walls are in the nature of lattices, and on the outside of them are planted vines and woodbines, that form a sort of green tapestry, and give an agreeable obscurity to those delightful rooms. The chamber destined for the Sultan, when he visited his daughter, is wainscotted with mother of pearl, fastened with emeralds like nails. There are others of mother of pearl and olive wood inlaid, and several of japanned china. The galleries, which are numerous and very large, are adorned with flowers, and porcelain dishes of fruit of all sorts, so well done in plaster, and coloured in so lively a manner, that it has an enchanting affect. The garden is suitable to the house, where arbors, fountains, and walks, are thrown together in an agreeable confusion; and no ornament wanting, except that of statues.

THE Turkish houses in general are composed of apartments on each of the sides of a square court all of stone, where it can be conveniently obtained;

obtained; but in many places they are only built of wood. These structures consist of a ground floor, which is generally arched, and an upper story flat on the top; and either terraced with hard plaster, or paved with stone. The ceilings are of wood, neatly painted, and sometimes gilded, as are likewise the pannels of some of their rooms, the cupboard doors, and the window shutters. The gilding of all these have a very agreeable affect: besides over the doors and windows, within the houses of the Turks, are inscribed moral passages out of the Koran, or verses of their own composing, or taken from some of their most celebrated poets. The courts formed by the four sides of the houses is neatly paved, and has generally a basin, with a fountain in the middle; and on one or both sides is a small spot left unpaved, for a kind of garden, which frequently scarce exceeds two or three yards square. The verdure here produced, with the addition of flowers in pots, and the fountain playing, would be a very agreeable sight to the passenger, were there openings to the street, through which these might be seen; but they are entirely shut up with double doors, so contrived, as that when opened none can look into the inner court; and there are no windows to the street, except a few in the upper rooms; so that nothing is perceived but dead walls, which give the streets, in all the Turkish towns, a very disagreeable appearance to the Europeans. Most of the houses of people of distinguished rank, have an arched alcove within this court, open to the north, and opposite to the fountain. This alcove has its pavement raised about a foot and a half above that of the yard. Between it and the fountain, the pavement is generally formed of mosaic work of various coloured marble, as is also

also the floor of a large hall, which has a cupola roof, and frequently a fountain in the middle, or at one end.

THE BAZARS, or Exchanges, are noble buildings, some of which extend half a mile in length, with an arched roof, and are kept extremely neat. These contain three or four hundred shops furnished with all sorts of rich goods, which are exposed to sale in the same manner as in Exeter Exchange in London. The pavement is also kept remarkably neat, and the shops are as clean as if just painted. Idle people of all sorts walk here for amusement, as well as those who come to buy, and coffee and sherbet are cried about, as oranges and apples in our play-houses. The Bisttan or Jewellers quarter, is another building of the same kind, supported on pillars. Here are exhibited vast quantities of diamonds and precious stones, rich embroideries, and horse furniture, glittering with gold and jewels. These are the principal places for shop-keepers.

THE public HANS, in some places called Caravanferas, are extremely magnificent, many of them taking up a large square, built round with shops under stone arches, where poor artificers are lodged gratis. They have always a mosque joining to them. The body of the Han contains a noble hall, capable of holding three or four hundred persons; the court is extremely spacious, and the cloisters round it give it the air of our colleges. In many places these HANS are appropriated to the use of travellers, who lodge and deposit their goods in them gratis. But we shall defer giving any farther account of these last structures.

OF

Of the TURKS.

THE Turks are generally well made; and those who dwell in cities have a tolerable fair complexion, while the peasants, and all who are obliged to be much in the sun, are swarthy. They have commonly black eyes, and their hair is usually black, or of a dark chestnut. The men, when young, are tolerably handsome, and the women extremely beautiful; but as they arrive very early at maturity, they soon fade, and generally look old at thirty. Few of the Turkish ladies paint, for this is almost peculiar to the common prostitutes; but they usually black their eye-brows; and from a principle of strengthening the sight, as well as an ornament, they generally black the inside of their eye-lids, by applying a powder called *Ismed*, which is a mineral substance, resembling a rich lead ore, and is prepared by roasting it in a quince, apple, or truffle; it is then levigated with oil of sweet almonds, on a piece of marble; and if intended to strengthen the sight, they frequently add flowers of olibanum or amber. This operation they perform with a cylindrical piece of silver, ivory, or steel, about two inches long, wetting it with water, in order that the powder may stick to it; and then applying the middle part horizontally to the eye, they shut the eye-lids upon it, and drawing it through between them, it blackens the inside, leaving a narrow, black rim round the edge. This custom has been practised many ages throughout the East. The women also stain their feet and hands with henna, which is brought from Egypt chiefly for that purpose. The common method is to dye only the tips of the fingers and toes, and a few

few spots upon the hands and feet; and leave them of a dirty yellow, the natural tincture of the henna, which has a very disagreeable appearance to an European; but it is more polite to have great part of the hands and feet stained in the form of roses, and various figures, with a dye that is of a very dark green. But in a few days this begins to change, and at last looks as disagreeable as the other. A slender waist is far from being admired by the Turks; and as it is rather considered as a deformity in the ladies, they use all their endeavours to render themselves plump.

THE Turkish habit appears very graceful; the men wear next the skin a pair of drawers, and over them a shirt, and a doliman of sattin, taffety, or other stuff, which reaches to their heels. In winter this is quilted, and girt very tight round the waist with a sash, in which they frequently wear two daggers, the handles and sheaths of which are sometimes adorned with gold, silver, and precious stones. In this girdle they also carry their money, and pouch of tobacco. Over the doliman they wear a sort of night-gown, which the wealthy, in winter, line with furs. Their stockings are of cloth, footed with red or yellow leather; and their shoes of the same colour. On their heads they wear a cap of crimson velvet, round which they wrap a red or white turban, which is a scarf of linen or silk, many ells in length. The Turks shave their heads, and say, "the devil nestles in long hair," yet they are fond of a venerable beard,

THE only writer capable of giving the dress of the woman of rank, in Turkey, was the lady we have already mentioned, ambassadress at Constantinople, and who was therefore of a rank sufficient to gain admission into the Harams of the great,

great. " The first part of my dress, says she, is
 " a pair of drawers, very full, that reach to my
 " shoes, and conceal the legs more modestly than
 " your petticoats. They are a thin rose-colour-
 " ed damask, brocaded with silver flowers. My
 " shoes are of white kid leather embroidered with
 " gold. Over this hangs my shift of a fine white
 " silk gauze, edged with embroidery. This shift
 " has wide sleeves hanging half way down the
 " arm, and is closed at the neck with a diamond
 " button; but the shape and colour of the bo-
 " som is very well to be distinguished through it.
 " The antery is a waistcoat made close to the
 " shape, of white and gold damask, with very
 " long sleeves falling back, and fringed with deep
 " gold fringe, and should have diamond or pearl
 " buttons. My castan, of the same stuff with
 " my drawers, is a robe exactly fitted to my
 " shape, and reaching to my feet, with very
 " long, strait, falling sleeves. Over this is the
 " girdle, of about four fingers broad, which, all
 " that can afford it, have entirely of diamonds,
 " or other precious stones; those who will not
 " be at that expence, have it of exquisite em-
 " broidery on sattin; but it must be fastened be-
 " fore with a clasp of diamonds. The curdee is
 " a loose robe they throw off or put on, accord-
 " ing to the weather, being of a rich brocade,
 " (mine is green and gold) either lined with er-
 " mine or sables; the sleeves reach very little be-
 " low the shoulders. The head-dress is compos-
 " ed of a cap, called talpoc, which is in winter
 " of fine velvet, embroidered with pearls or dia-
 " monds; and in summer of a light shining
 " silver stuff. This is fixed on one side of the
 " head, hanging a little way down, with a gold
 " tassel, and bound on either with a circle of dia-
 " monds,

"monds, or a rich embroidered handkerchief.
 "On the other side of the head the hair is laid
 "flat; and here the ladies are at liberty to shew
 "their fancies; some putting flowers, others a
 "plume of herons feathers, and, in short, what
 "they please; but the most general fashion is,
 "a large bouquet of jewels, made like natural
 "flowers; that is, the buds of pearls, the roses
 "of different coloured rubies, the jessamines of
 "diamonds, the jonquils of topazes, &c. so well
 "set and enamelled, that 'tis hard to imagine
 "any thing of that kind so beautiful. The hair
 "hangs at its full length behind, divided into
 "tresses braided with pearls or ribbons, which
 "are always in great quantity."

It must be observed that no woman, of what-
 ever rank, is permitted to go into the streets with-
 out two murlins, one that hides the whole dress
 of her head, and hangs half way down her back,
 and another that covers her face, all but her eyes.
 Their shapes are also entirely concealed by what
 is called a Ferigee, which no woman appears
 without; it has long sleeves that reach to their
 fingers ends, and wraps round their bodies like a
 riding hood: this, in winter, is made of cloth,
 and, in summer, of plain silk or stuff. By this
 means they are so disguised, that the greatest lady
 cannot be distinguished from her slave: it is im-
 possible for the most jealous husband to know his
 wife when he meets her; and no man dare touch,
 or follow a woman in the street. Their appear-
 ing thus in masquerade affords them the liberty
 of following their inclinations, without being in
 danger of discovery. Their most usual method
 of intrigue is sending an appointment for the lo-
 ver, to meet them at a Jew's shop, where the
 most valuable goods are sold. The great ladies
 seldom

seldom let their gallants know who they are; and frequently they are unable to guess the lady's name, with whom they have corresponded above half a year together.

THE Turks who are rich, are far from being so abstemious as many people imagine. Soon after they rise in the morning, they breakfast on fried eggs, honey, leban, cheese, &c. At about eleven o'clock in winter, and rather earlier in summer, they dine. They have a round table, which, as well as their dishes, is made, either of copper tinned, or, for persons of high rank, of silver. This is placed upon a stool, about twelve or fourteen inches high, and a round piece of cloth is spread upon the carpet under the table, to prevent its being soiled. A long piece of silk is laid round to cover the knees of those who sit at the table, which has no covering but the victuals. Salads, pickles, small basons of leban, bread and spoons, are placed in order round the edge; and the middle of the table is for the dishes; which, among the great, are brought in one by one; and after each has eat a little, they are changed. They sit cross-legged at table on the carpet; and their fingers, as in other parts of the East, serve for knives and forks; but for liquids they make use of spoons of tortoise-shell, horn, or wood, those of gold and silver not being permitted by their religion. Their bread is usually made of wheat flour, in thin, flat-cakes, ill baked, and eaten new; besides these, there are a variety of rusks and biscuits. The first dish is generally a kind of soup, and the intermediate dishes, which are frequently numerous, consist of mutton, cut into small pieces, either roasted or stewed with herbs: stewed fowls, pigeons, or other birds, commonly stuffed with rice, and spices: a

whole lamb stuffed with rice, almonds, raisins, pistachios, &c. and stewed, is a favourite dish: pastry, both with meat and fruit: a large pillaw comes last, except a thin sirrup, with dried apricots, raisins, slices of apples, pears, or the like, swimming in it. Water is their liquor at table; and after dinner they drink coffee. The lady we have so often quoted observes, that for the first week their cookery pleased her extremely; but then growing weary of it, she desired her cook to make a dish or two after our manner; but acknowledges that this might be owing to custom, and that she was ready to believe that an Indian, who had never tasted of either, would prefer their cookery to ours. However, with respect to the common people, bread, dibbs, leban, and a little mutton, are their principal food in winter; as rice, bread, cheese and fruit, are in summer. Their chief meal is in the evening, when they return home from work.

THE Turks usually sup at about five o'clock in winter, and six in summer, in much the same manner as they dine; and in winter frequently visit each other, and sit up late, when they have a collation of several sweet dishes.

WINE and spirits are supposed to be only drank by the licentious and irreligious; and these liquors being prohibited by their religion, they commonly drink them in secret, at their gardens, or privately in the night; and when they once begin, frequently drink to excess. There are others, however, who drink wine with moderation, and say in excuse, that all the creatures of God are good, and designed for the use of man; yet the prohibition of wine was an act of wisdom, and designed for the vulgar, among whom it would be the source of infinite disorders: but that the prophet

prophet never intended to restrain those who knew how to use it with discretion; nevertheless scandal ought to be avoided, and therefore they never drink it in public. This is the opinion of the sensible part of the people; few of whom, who are able to afford it, make any scruple of drinking wine.

STRONG coffee, without either milk or sugar, is a refreshment universally esteemed; and a dish of it, preceded by a little wet sweatmeat, which frequently consists of conserve of red roses, sharpened with lemon-juice, and a pipe of tobacco, is the usual entertainment at a visit; but if they choose to use less ceremony, the sweat meat is omitted. When they shew an extraordinary degree of respect, they also present sherbet, which is of different kinds; they likewise sprinkle sweet-scented water, and perfume their visitor with the smoke of the wood of aloes, which is brought in a canser, and generally serves for an intimation that it is time for the stranger to take his leave.

THOUGH we are apt to esteem these people as Barbarians, yet their distinguishing characteristic, is politeness and hospitality. The ingenious Mr. Wood observes, on a traveller addressing the governor of a province for his protection, and making him, according to the custom of the East, a handsome present, a pipe, coffee, sweetmeats, and perfume, are successively presented; and he will pay him the compliment of telling him, that the land he commands, and all that is in it, are at his service. “In no instances, says the above gentleman, do the oriental manners shew these people in so amiable a light, as in their discharge of the duties of hospitality: the severities of Eastern despotism, having indeed been always softened by this virtue, which so hap-

"pily flourishes most, where it is most wanted.
 "The great forget the influence of power to the
 "stranger under their roof; and only preserve a
 "dignity, so tempered by humanity, that it sole-
 "ly commands that grateful respect, which is
 "otherwise scarce known in a country, where
 "inferiors are oftener taught to fear than to love.
 "But avarice is as much an eastern vice, as hos-
 "pitality is an eastern virtue. The most sordid
 "instances among the former, we found among
 "the great, and those in public employments;
 "while we experienced extraordinary instances
 "of generosity in private life. We would there-
 "fore be cautious of charging to the character of
 "a people, what this government seem to re-
 "quire: for amidst the uninterrupted series of
 "shameless venality, which regulates the dis-
 "charge of every private duty, from the Prime
 "Vizier downwards; and which, in the true spi-
 "rit of despotism, stops only at the wretch, who
 "is too low to make reprisals, every subaltern
 "in power must submit to that proportion of the
 "common prostitution, which belongs to his
 "rank; and which therefore seems rather the
 "vice of the office than of the man." But not-
 "withstanding the general character of politeness,
 "courtesy, and hospitality, by which the great are
 "peculiarly distinguished, the Mahometans in pri-
 "vate life assume a superiority over all who are of
 "a different faith; which is best perceived by those
 "who dwell for a considerable time among them.
 "But this greatly declines, and several Bashes have
 "conferred public honours on the Europeans, that
 "would formerly have caused great popular discon-
 "tent. Among the vulgar, an affected gravity,
 "with some share of dissimulation, is too much
 "their characteristic. They are also addicted to
 "quarrelling

quarrelling and abusive language, though none are less guilty of fighting; but though they are so prone to anger on the most trifling occasion, no people upon earth can be more calm, when it is for their interest; yet there are people who deserve a much better character; for some of all ranks are possessed of the utmost integrity and honour.

Not only the men, but many of the women, smoke tobacco to excess; and the labourers and artificers have generally a pipe in their mouths. These pipes consist of a twig of the cherry-tree, or rose-bush, bored for that purpose; and those of superior rank are five or six feet long, and adorned with silver. They use the Persian tobacco, which has an agreeable flavour. But the practice of taking opium is much less general in Turkey than formerly.

THE Turks have not the least notion of the benefit of exercise; and laugh at the European Christians for taking a walk, merely for the sake of amusement. Indeed, it is with reluctance they use much exercise, either for business or pleasure. A walk or ride to their gardens once or twice a week, when they are situated at a small distance from their houses, is as much as most of them care for. People of rank, however, are very active on horseback, and in throwing the jareed, or short staff, which they dart very dexterously on full speed; and a mock fight with this weapon is a common entertainment. It is amazing to see, with what dexterity they manage their horses upon these occasions, so as to avoid running against each other, when numbers are galloping, seemingly in the greatest disorder. This is, however, but seldom practised, their time being chiefly

spent in the indolent indulgence of lolling in their Divans.

THEIR principal amusements within doors are playing at chess, at which they are extremely expert, and at a kind of back-gammon. Their other diversions are playing at draughts, the play of the ring, and some others. With this last diversion, the great frequently amuse themselves during the winter-evenings: it consists in guessing, under what coffee-cup a ring is hid, out of a number of cups placed on a large salver. Several on each side engage in this play; and those who win, have the privilege of blacking the faces of those who lose, or of putting fools caps on their heads, and obliging them to stand before them, while they sing extempore songs in their own praise, and in derision of the losers. But they treat none in this manner but their servants, or their inferiors, some of whom, particularly, if they have any turn for buffoonery, are always of the party. All these games are used by the Turks only for amusement; for they never play for money, though they will sometimes go so far as to play for an entertainment. Dancing is far from being reckoned an accomplishment among people of rank, and is seldom practised by any but those who make a trade of it. Their dexterity consists less in their agility, than in the motions of their arms and body, and using gestures, which, particularly among the female dancers, are not the most decent. Wrestling is also sometimes a part of their entertainment at their festivals; this is performed by men hired for that purpose. They have likewise buffoons, who constantly attend all merry-makings.

THE Turks have two sorts of music, one for the field, and the other for the chamber. The first

first is performed before the great military officers, and is always used in their garrisons. It consists of trumpets, cymbols, hautboys, shorter and shriller than ours; and large drums, the upper part of which is beat upon with a heavy drumstick, and the lower, with a small stick: they have also small drums, which are beat after the manner of our kettle drums: this music has a pretty good affect at a distance. Their chamber music consists of a guitar, an Arab fiddle, a dulcimer, different sorts of flutes, a couple of small drums, and the diff. This last instrument chiefly serves to beat time to the voice, which is frequently very inharmonious: it is formed of a hoop, over which a piece of parchment is extended; and sometimes pieces of brass are fixed in it, to make a jingling. It is beat with the fingers, and is the true tympanum of the ancients. The Turks, though acquainted with the different measures used in music, have no idea of writing it by notes, and are therefore obliged to learn entirely by the ear; and when several persons play together, they keep exact time, all playing the same, for they have neither base, nor any other parts. According to some authors, the Turks have no music but what is shocking to the ear; but they probably never heard any but what is played in the streets; and their account, as the lady Wortley Montague observes, is just as reasonable; as if a foreigner should take his ideas of English music, from the bladder and string, or the marrow bones and cleavers. Their music being extremely pathetic, and many of the women have fine melodious voices.

OUR account of the customs of the Turks would be very imperfect, were we to omit mentioning the public bagnios, which are frequented

by persons of all conditions, except those of a very distinguished rank, who have them in their own houses. On entering a bagnio, you come into a large lofty room, in the midst of which, is usually a fountain with a bason. This apartment is surrounded with sofas; and here the people dress and undress, the air not being affected by the heat of the bath, except at the door, which opens into a small, warm room, and from thence into a larger, that is very hot. About the sides of these rooms are usually placed round stone basons, about two feet and a half in diameter, with two cocks, one of hot, and the other of cold water; so that it may be tempered at pleasure; and there are copper bowls for pouring it on the body. In the corners of the inner room are small retiring places, in one of which is frequently a cistern of warm water, about four foot deep, large enough for bathing the whole body. All these rooms are covered with domes; and the inner receive their light from openings in the dome covered with glass. A few bagnios are solely for the use of the men, others are appointed for the women only; and many of them admit both sexes; the men in the morning, and the women in the afternoon. When a man enters the hot room, he first applies the Dewa, a medicine for taking off the hair from the arm-pits and pubis; and this remains till the hair is quite loose, when it is washed off with great care. After this, one of the servants of the bagnio begins with chafing or kneading violently, first, the tops of the shoulders, and then, by degrees, the whole body. On his coming to the hands, he pulls the joints of the fingers so as to make each crack separately; then laying the person on his back with his arms across his breast, he raises him forcibly by

by the back part of the neck, making the greatest part of the vertebræ crack. Then chafing the back a little more, he throws a quantity of warm water over the whole body, and rubs him hard with a bag of coarse cloth, drawn over his hand. He is next rubbed over with a soap lather; and this being washed clean off, the person puts one towel round his middle, another round his head, and a third, perhaps, over his shoulders; then returning to the great room, he usually smokes a pipe, drinks coffee, and, perhaps, eats some fruit before he dresses. This method is practised in much the same manner, not only through all the Turkish dominions, and in Persia, but in India, where it is esteemed a great luxury, and has an extraordinary affect on the spirits.

As the right honourable lady, from whose letters we have borrowed several curious particulars, is the only writer who was ever able to describe the baths for the women, and their behaviour at them, we shall take the liberty of borrowing this account from that elegant writer. Round the room, says she, were two rows of sofas covered with cushions and rich carpets, on which sat the ladies, and on the second their slaves behind them, all in the state of nature, without any beauty or defect concealed; yet there did not appear the least wanton smile, or indecent gesture. They walked and moved, with the majestic grace, with which Milton describes our general mother. Many among them were as finely proportioned as ever any goddess was drawn by the pencil of a Guido, or a Titian; and most of their skins were of a shining white, only adorned by their beautiful hair, divided into many tresses, hanging on their shoulders, braided either with pearls or ribbons, and perfectly resembled the figures of the

graces. Our fair author here observes, that she was now convinced of the truth of a reflection that she had often made, that were it the fashion to go naked, the face would hardly be observed; for the ladies, who had the most delicate skins, and finest shapes, had the greatest share of her admiration; though their faces were sometimes less beautiful than those of their companions. They were in different postures, some in conversation, some drinking coffee or sherbet, others working, and many lying negligently on their cushions, while their slaves, most of whom were agreeable young women of about seventeen or eighteen, were employed in braiding their hair, in several curious fancies. These baths may be considered as the women's coffee-house, where all the news of the town is told. They usually take this diversion once a week, and stay there at least four or five hours; but it is surprising they do not get cold, by immediately coming out of the hot bath into the cool room. It must be observed, that it is death for any man to get admission to these bagnios, during the time the ladies are there.

THE same illustrious lady gives us a description of the ceremonies observed at the reception of a Turkish bride, at one of these bagnios. All the female friends, relations, and acquaintance of the two families, newly allied, meet on this occasion at the bagnio; and others going out of curiosity, there are sometimes near two hundred women present. Those who were married when this lady was present, placed themselves round the rooms on the marble sofas; but the virgins hastily threw off their cloaths, and appeared without any other ornament or covering than their own long hair, adorned with pearls or ribbons. Two of them met the bride at the door, conducted

ed by her mother and another grave relation. She was a beautiful maid of about seventeen, very richly dressed, and shining with jewels; but was soon reduced to the state of nature. Two others filled censers of silver gilt, with perfume, and began the procession, the rest following in pairs, to the number of thirty, the leaders singing an Epithalium, answered by the others in chorus; and the two last led the fair bride, whose eyes were modestly fixed on the ground, round the three large rooms of the bagnio. The bride was then led to every matron round the rooms, and by each was saluted with a compliment and a present, some of jewels, others of pieces of stuff, handkerchiefs, or little gallantries of the like nature, which she thanked them for, by kissing their hands.

THE women are generally married from the age of fourteen to eighteen; but the bride and bridegroom never see each other, till the ceremony is performed. The mothers, in order to find a proper wife for their sons, introduce themselves into company, where they expect to see young women who are disengaged; and when they find one, they think will be agreeable, make the proposal to her mother. Upon which the girl's family enquire into the young man's character and circumstances; and if they are like to agree, his father makes a formal demand of her; the price is fixed that is to be paid for her, and a license procured for their marriage. Then each of the young folks fix upon a proxy, who meet the Imaum, and the male relations. The Imaum asks one of the proxies, if he is willing to purchase the bride for such a sum of money; and the other, whether he be satisfied with it; which being answered in the affirmative, he joins their hands, and the money being paid, the affair is concluded with a

prayer out of the Coran. The sum paid for the bride is laid out in furniture, for one chamber, with cloaths, jewels, and other ornaments; and her father makes some addition, according to his circumstances. All these are sent with great pomp to the bridegroom's house, three days before the wedding; mean while he invites all his friends and acquaintance, and a kind of open house is kept for several days. On a day appointed the women go from the bridegroom's house, and bring home the bride, accompanied by her mother and other female relations, when each sex makes merry in separate apartments till night. The men having dressed the bridegroom, introduce him to the door of the women's apartment, where he is met by his own female relations, and the men proceed singing and dancing before him to the stairs foot of the bride's apartment, where she is brought half way down stairs to receive him, veiled with a piece of red gauze; and he having conducted her up stairs, they are left to themselves.

A WOMAN that dies unmarried is thought to depart this life in a state of reprobation; for they say, that the end of the creation of woman is to encrease and multiply, and that she is only properly employed in the works of her calling, when she is bringing forth children, or taking care of them, which are all the virtues that God expects from her. Hence many of those who are superstitious, are no sooner widows than they marry again as soon as they can, for fear of dying in the wicked state of an useless creature. But those that are fond of liberty, and are not very scrupulous, defer marrying till they are afraid of dying. Among the Turks it is a greater disgrace to be married without being fruitful, than it is with us for a woman to be fruitful before marriage. They are
respected

respected according to the number they produce ; and therefore, when they are with child, it is usual for them to say, they hope God will be so merciful as to send them two this time. Like the women of many other nations, they seem exempt from the curse entailed on the sex ; for the ladies see company on the day of their delivery, and at the fortnight's end, return visits in new cloaths, and adorned with jewels. The Turks, however, keep their wives at home as much as they can, but let the husband be ever so jealous, he is obliged to suffer them to go frequently to the bagnio, and Mondays and Tuesdays are a kind of licensed days for their visiting the tombs of their deceased relations, which gives them an opportunity of walking abroad in the gardens or fields.

A MAN may divorce his wife twice, and if he afterwards repents, may take her again ; but that they might not divorce their wives upon every slight occasion, and merely from caprice and humour, Mahomet ordained, that if any man divorced his wife a third time, it should not be lawful for him to take her again, till she had been married, and divorced from that husband. This precaution has such an effect, that the Turks seldom divorce their wives ; and scarce any, who have the least sense of honour, will take her again on the last condition.

UPON the death of a Turk, the women burst forth into shrieks, which they continue till the body is interred, which is done as soon as possible. The corpse is first carefully washed, and all the natural passages stopped with cotton, to prevent any moisture oozing out, which would render the body unclean. It is then wrapped in a cotton cloth, and laid in a coffin, nearly in the form used by us ; and upon the pall are laid some
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of the best cloaths which belonged to the deceased. In carrying the body to the grave, a number of shieks, with tattered banners, walk first; then come the male friends; and after them the corpse, carried with the head foremost, upon men's shoulders. The corpse is followed by the nearest male relations; and the women close the procession with dreadful shrieks, while the men are all the way employed in singing prayers out of the Coran. In this order they proceed to a mosque, where the bier being set down in the court-yard, a service is said by the Imaum, after which the corpse are carried in the same order to the burying-place, which is usually placed in the fields. The graves are lined with stone, and the corpse is placed in one, in a posture between sitting and lying, with the face towards Mecca; and then the grave is covered with long stones, to prevent the earth falling into it. The Imaum throws the first handful of earth upon these, saying, O man, from the earth thou wert at first created, and to the earth thou dost now return. This grave being the first step in thy progress to the mansions of the other world, if in thy actions thou hast been benevolent, thou art absolved by God; but if on the contrary thou hast not been so, the mercy of God is greater than all things. Remember that God is thy Lord, Mahomet thy Prophet, believe in all the Prophets and Apostles, and pardon is extensive. Then every one throws down a handful of earth, saying, God be merciful to the deceased. The sepulchres of particular families are railed in, and the burying-places take up a considerable space round the cities. The nearest relations pray at the grave, on the third, seventh, and fortieth days, after the interment; and also on the day twelvemonth after the person's decease; and

and on each of those days, a quantity of provisions is dressed, and given to the poor. Every Monday and Tuesday the women adorn the tomb with flowers, or green leaves, shewing the deepest grief; while the men, generally acquiesce with the greatest patience in the loss of their nearest relations; and under every other misfortune, behave with the utmost fortitude. The men wear no mourning, but the women dress in the gravest coloured cloaths, and wear a head dress of a dark brick dust colour. They lay aside their jewels, and all other ornaments for the space of a year, when they mourn for a husband; and six months if it be for a father; but these periods are not always strictly observed.

MAHOMETISM is said to be divided into as many sects as Christianity. Its first institution seeming to be entirely obscured by different interpretations; but though the Turks behave with the utmost zeal in the support of their opinions, the spirit of persecution against each other, has never been carried to such a height as among the Christians. The prevailing opinion is said to be Deism; but no Turk ever sets up for a wit by pretending to disbelieve a God, or by treating his sacred name with familiar contempt. Charity is enjoined in the Coran, in the strongest terms; and the Turks are remarkable, not only for their benevolence to the poor and the distressed; but for their preventing the unfortunate being reduced to necessities. They build Kams, or Caravanferas for the reception of travellers, erect cisterns of water for their convenience, and set up sheds by the way side, that the weary traveller may sit under the shade.

THEY give names to their children as soon as they are born; at which time the father, putting a little salt into their mouths, and lifting them on high, as dedicating them to the Great Creator, cries

cries out, God grant my son Solyman, that his holy name may be as savoury in thy mouth, as this salt; and may he preserve thee from being too much in love with the world. They believe that the infants who die young, before they are circumcised, are saved by the circumcision of their father; and therefore this is sometimes deferred, till they are twelve or fourteen years of age, when they are able to make a profession of their faith. On the day fixed for this ceremony, the boy is set on horseback, and conducted with music about the town; after which the ceremony of circumcision is performed in the following manner, at his father's house: after a short exhortation, the Imaum or Priest, causes him to make his profession of faith, by saying, "There is no God but God, and Mahomet is his Prophet." The surgeon then places him upon a sofa; and two servants holding a cloth, spread out before the child's face, the surgeon draws the fore-skin as low as he can, holding it with pincers, while he cuts it with a razor, and then shewing it to the assistants, cries, God is Great. The child cries out with pain; but every one congratulates him on his being admitted to the rank of a Mussulman, or Believer; and on this occasion a feast is made, and the relations and friends spend the day merrily in singing and dancing; and the next day, those who are invited, make presents to the child.

THE Turks regularly pray five times a day, and are obliged to wash before their prayers, and every time they ease nature. As they chiefly make use of their fingers in eating, they are also under the necessity of washing after every meal; and the more cleanly likewise, do it before meals. Besides, whenever they cohabit with their women, they must go to the bagnio, before they say their prayers;

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Prayers; thus they are dabling in the water almost all day long.

WE shall defer treating of the fast of Ramadan, till we treat of the Persians, both performing it in the same manner; and shall here describe the feast of Bairam, which begins with the next new moon after that fast; and is made known by firing of guns, bonfires, and other rejoicings. The houses and shops are then adorned with the finest hangings, and tapestries. Swings ornamented with festoons are hung in the streets, in which the people sit, and are tossed in the air, while they are at the same time entertained with vocal and instrumental music, performed by persons hired by the masters of the swings. They have likewise fire-works; and during the three days of this festival, the women have the liberty of walking abroad. One valuable part of this festival is, that they forgive their enemies, and become reconciled to them; for they think they have made a bad Bairam, if they harbour the least malice in their hearts against any person whatsoever. This is termed the Great Bairam, to distinguish it from the Little Bairam, which is kept seventy days after. They have also several other festivals, on all which the minarets of the mosques are illuminated with lamps.

THERE are a few monasteries of Dervises, whose devotions and religious ceremonies are performed in a very whimsical manner. They are permitted to marry, and have an odd habit, which only consists of a piece of coarse white cloth, or a loose frock, wrapped about them with their legs and arms naked.

WITH respect to the punishments inflicted on criminals in Turkey; these, as in other arbitrary countries, are very often severe. The most singular

gular of these is impealing, which is generally inflicted for the highest crimes, and is certainly one of the greatest indignities that can be offered to human nature, and is performed in the following manner: they take a post eight or nine feet long, about the thickness of a man's leg, which they make sharp at one end, and oblige the criminal to carry it to the place of execution, where, laying him on his belly, they thrust it into his fundament, and taking him by the legs draws his body upon it, till the point of the stake appears at his shoulders; they then erect the stake in a hole, dug in the ground, when, according to the Reverend Mr. Maundrell, the unhappy wretch, sitting in that posture, not only continues alive, but even perfectly sensible, and sometimes drinks, smokes, and talks, for twenty-four hours; but generally, after he has remained in this deplorable situation for an hour or two, one of the bystanders is permitted to give him a gracious stab to the heart, in order to put an end to his inexpressible misery.

THE other punishments for capital offences are beheading, and strangling with the bow-string, and for small offences, the bastinado.

THE Turks have several curious and beautiful manufactures; and carry on a very considerable inland trade with the provinces and towns, and also with foreign nations; though it is chiefly by means of the Jews and Armenians. The Turks, indeed, convey the products of the country and other goods both by land and water, from one province to another, but not to foreign Christian countries: great numbers of English, French, Dutch, Italian, and Spanish ships, repairing to the harbours in Turkey where they import their goods, and purchase those of the country. The exports
from

from Turkey are silks, beautiful carpets, camels hair, goats hair and wool, cotton-yarn, waxed linen, dimity, blue, red, and yellow leather, shagreen skins, coffee, dates, almonds, oil, figs, raisins, rhubarb, saffron, opium, turpentine, storax, gums, galls, mastich, emery, lemnian-bole, pomegranate shells, sponges, wax, box-wood, mother of pearl, &c. The English merchants export thither sugar, watches, broad cloths, long ells, iron, tin, and many other articles.

HAVING thus taken a view of what is most remarkable in the European part of the Turkish empire, we now proceed to their Asiatic dominions.

PART II.

Of ASIA.

CHAP. I.

Of TURKEY in ASIA.

WE are now entering into a part of the world in many respects the most considerable of the four, though a natural fondness for our own country is apt to incline us to give the preference to Europe. It was in Asia that the Supreme Creator planted the delicious garden of Eden, in which he placed the first parents of mankind ; and Asia became again the nursery of the world when it had been destroyed by the flood, the descendants of Noah dispersing from thence their various colonies into all the other parts of the globe. It was in Asia that God chose to fix his favourite nation the Hebrews ; in the same country our Blessed Saviour accomplished the great work of our redemption, and from thence the light of his glorious gospel was spread into all nations by his disciples and followers. In Asia the first cities were built, and the first monarchies were founded, even whilst the rest of the world was destitute of inhabitants.

To these advantages may be added the fertility of the soil of Asia in general, the serenity of its air, the deliciousness of its fruits, the salubriousness of its drugs, the fragrancy and balsamic quality of its plants, gums, spices, &c. the variety,

Variety, beauty, and value of its gems, the fineness of its silks, the richness of its metals, and many more of the like nature; on which account it has always been looked upon as a charming part of the world, though in some respects it has had a rival since the discovery of America. It must be owned, indeed, that since the Turks have been in possession of a very considerable part of Asia, it has quite lost its ancient splendor, and countries naturally rich and fertile are almost reduced to a wild uncultivated desert; but notwithstanding all the indolence and tyranny of the Turks, their Asiatic dominions afford a great many valuable commodities, for which they are resorted to by merchants of other nations. These countries likewise afford the Antiquarian abundant matter of amusement, being overspread with the ruins of great and opulent cities, celebrated both in sacred and profane history, the chief whereof will be described hereafter; but we shall first consider a few articles belonging to the mineral or fossil kingdom,

F O S S I L S.

A VERY remarkable curiosity of this class is the Soap Earth, which Dr. Smith informs us is found only in two places near Duraclea, a village about six leagues to the eastward of Smyrna. It is a whitish earth, and in effect a fine soap, boiling out of the ground, and is always gathered before sun-rise, in mornings when there falls no dew. In some places it comes up an inch or two above the surface of the ground, but when the sun shines upon it, it sinks down again. Every morning there is a new crop, though all was gathered that appeared the day before. The soil that produces it lies low, and is marshy in the winter;

winter; so that a stock for the whole year must be laid up in the summer-months. At the soap-houses they mix three fourths of this earth with one of lime, and dissolve the composition in boiling water; and stirring it often with a stick, there floats at top a thick brownish matter, which they scum off and preserve in basons by itself, being much richer than the liquor underneath, though both are used in making the soap. They then put a proper quantity of oil into a large copper, with a strong fire under it, and when the oil boils they throw into it alternately some of the scum, and some of the liquor from whence the scum was taken; and this they repeat for thirteen or fourteen days together, in which time the soap is usually perfected, when it is taken out of the boiler, and laid upon a lime-floor to dry and harden. An ordinary soap-house (says our author) produces a thousand dollars a year clear profit, one year with another.

THE Samian earth is a white soft marle, found no where in the world that we know of but in the island of Samos, and which was much esteemed by the ancients, who prepared it by burning and washing, and then used it with great success internally in fluxes of all kinds, and externally in inflammations. This marle does not lie in a regular stratum among other earths, but is found in the perpendicular fissures and horizontal spaces between the strata of a hard greyish stone. It has an astringent taste, and its virtues are much the same with those of the Lemnian earth.

FROM Sinope, a city of Anatolia on the Black Sea, a very fine sort of earth or ochre takes its name, it being the Rubrica Sinopica of the ancients, so called, because it was carried to that city for sale, though dug up in Cappadocia. It

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is a close, compact, and weighty earth, of a glowing purple colour, but in some specimens much deeper than in others, and some degenerating into paleness. It is of a pure texture, but not very hard, though it does not easily crumble or break between the fingers. It has an austere astringent taste, adheres firmly to the tongue, melts slowly in the mouth, and leaves not the least grittiness between the teeth. This earth, like the Samian, is found in the perpendicular fissures of stone, and among iron-ores, sometimes lying at great depths, and sometimes at the very surface. Its fine texture and high florid colour makes it worthy the attention of the painters, and its great astringency renders it valuable in medicine. The ancients were well acquainted with it as an astringent, in fluxes and hæmorrhages of all kinds.

BUT of all the earths used in medicine, none seems to have been more deservedly esteemed than what we call Bole Armenic or Armenian Bole, being anciently, as well as at present, found in Armenia. The true Bole Armenic of Galen, which that excellent physician first introduced into medicine, and used with success in the time of a terrible plague at Rome, was of the yellow kind, and is confessedly a most valuable astringent, and also commended as an alexipharmic and sudorific. This sort is perhaps the best medicine of all the earths, and, though seldom known or looked for amongst us, might easily be procured, great quantities of it being annually dug out of a pit in the mountains to the north-east of Erzerum. There is also a white sort, which is scarcer, and unknown in our shops, the reddish kind now passing among us for the true Bole Armenic; and a good medicine it is, if we had it genuine, but instead of that, we are imposed

posed upon by a composition of tobacco-pipe-clay, and an ochre, known by the painters under the name of Spanish brown. This red sort is found abundantly in the north-east parts of Armenia, sometimes in strata seven or eight feet thick, never lying very deep, and often appearing on the surface. It is a pure and valuable earth, of a compact texture, and indeed the hardest of all the boles, being not easily broken, and staining the fingers a little in handling. It does not soon dissolve in water, but melts readily enough in the mouth, and leaves not the least grittiness.—As to its virtues, it is a good astringent, and has ever been accounted serviceable in the plague, malignant fevers, dysenteries, spitting of blood, and hæmorrhages of all kinds; but, as we have intimated before, it is seldom or never to be found genuine in our shops.

NOTWITHSTANDING we have heretofore given some account of the agate *, we think it necessary to say something here of a very elegant and beautiful species of it, called by our lapidaries the Mocoa-Stone, as being carried, for the convenience of sale, to Mocoa or Mocha in Arabia, tho' produced in the East-Indies. This stone is of a compact and fine texture, of an irregular surface, uncertain in shape and size, but most frequently of the figure of the ordinary flinty pebbles, and from one to eight inches in diameter. The veins of it are prettily disposed in various figures, but generally in the form of many concentric circles, drawn round one or more different points in different places. In divers parts of the stone it is common to find beautiful delineations of trees, mosses, sea-plants, and such-like figures, so elegantly expressed, that many have believed real

* See Vol. I. p. 211.

mosses and sea-plants included in its substance. This, however, is an absolute mistake; the true history of those figures (according to Dr. Hill) being no more than this, that the stone is subject, like our common flints, to imperceptible cracks or flaws, into which the steams or effluvia from minerals and other fossil bodies, continually pervading the whole structure of the earth, find their way, and perhaps sometimes water itself may get within them. Now we are sensible, that either water or these vapours may be capable of leaving a black tinge on the surface of bodies they have long remained on; and these finding a passage into the natural cracks and small crevices of the stone, have from the sides of these insinuated themselves farther and farther into the mass, and run into branched figures; or the water, where originally included in ever so small a quantity, has, as the stone contracted more firmly, spread and diffused itself into the various detached figures we are speaking of; for all the delineations in these stones may be referred either to these detached figures, or cloudy spots, or to those which evidently arise from the sides of a long crack or fissure. That steams or mineral effluvia pervade almost all fossil bodies, is proved from numerous instances; but what makes most for the present purpose is, that we find them wherever there have been cracks, in many of the harder kinds of the *Septariæ*, frequently affording what naturalists call *Dendritæ*, or fuliginous delineations of trees, &c. which far excel those of agates, and would be inestimable, were they in as valuable a substance. The very surfaces of the *Septariæ* are often over-spread with them, and even so poor and low a substance as chalk is not without these delineations, and those more beautiful than what we admire in agates.

But that they are not real remains of vegetables, every one must needs be convinced, who observes the multitude of figures not in the vegetable world, nor indeed in nature, otherwise than in these elegant diffusions of a subtile matter by which they are formed, just like the branched figures between two levigating stones at the colour-shops, the ramifications of salts in chymical vessels, and the elegant figures of plants, &c. in the hoar-frost on windows.—We have something from Germany that imperfectly resembles the Mocha Stone, but it is only a baser agate with various delineations, which may happen, as we have shewn, to any stone, and are common, in some degree, even to our English pebbles.

SEVERAL kinds of Onyx are found in Arabia, particularly a very elegant species with whitish and yellow zones, properly the yellow sardonyx. The orange-sardonyx, or bluish-white onyx, with orange-coloured and whitish zones, is also to be met with in that country as well as others. But perhaps the most singular species of this gem is what the moderns call Camea, the Arabian onyx of the ancients, which, in the hand of the sculptor, is often seen to make a beautiful figure. It is moderately compact and firm, of a smooth and equal surface, generally of a roundish form, but sometimes broad and flat, in which last form it is the least valuable, the pieces being smaller than the round ones, and subject to transverse or perpendicular flaws and fissures, which often divide a stone into bits not worth the working. The zones of this species are very hard and thick, of no colours but black and white, and those ranged in a regular alternate order, but not very regular in their breadth. In some masses indeed they are nearly equal, but in others the black zones are sometimes

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very broad, and the white ones very narrow, and *vice versa*; and this now and then in different parts of the same mass. The crystalline Nucleus or basis in this species is the only part that is of any degree of purity, the zones being so dull and opaque, that the stone may easily be mistaken for marble; but as it is considerably hard, and capable of a fine polish, it has always been esteemed by the jewellers and lapidaries, for the cutting of heads or other figures.

THE Opal, a gem of a very peculiar kind, and much valued in all ages, is likewise found in Arabia, and that in greater perfection than in Europe. It is softer than any other of the fine gems, and not easily polished; but being naturally of a smooth surface and tolerable gloss, some of the best of them are worn with their native polish only. It is found of various sizes, but most frequently between that of a pea and a horse-bean; though sometimes it is met with as small as the head of a pin, and sometimes as large as a walnut. Its shape is likewise uncertain, some being irregularly oblong, others perfectly round, and others in the form of a kidney. Its colour is of so mixed a nature, that it is not easy to be described, being something like the finest sort of mother of pearl, but far exceeding that in lustre and transparency. As it is variously turned about, it shews the colours of almost all the other gems, having the yellow of the topaz, the blue of the sapphire, the green of the emerald, the red of the ruby, and the fire-colour of the carbuncle, when held against the sun. All these colours (besides a white milky cast) are of a fine brightness and lustre, but are only the effect of different reflections of light falling on it in different angles, and not permanent and unalterable in the stone, like the single colours of other

gems; for the small fragments of opal do not shew them, but are of a pale blueish or pearly grey, which is properly its genuine colour. Some opals want one or more of the above-mentioned colours, and are liable to be tinged with a deep blueish black; in which last case the gem shews no colour but its red in any light or position, but then the red appears more than usually glowing and fiery, and seems lodged very deep in the stone; so that in this state, which is but an imperfect one, it has an excellency beyond even its finest specimens. The opal, of all the gems, is the most difficult to be exactly counterfeited*.

THE Asiatic dominions of the Turks (wherein we include the whole of Arabia, though part of it is subject to independent princes) afford abundance of copper and other metals, which we have spoken of sufficiently in Europe, and therefore they require no farther notice in this place: and of the various kinds of marble which these countries produce, we need only describe two or three of the most remarkable. A snow-white lucid alabaster, which Dr. Hill takes to be the Lygdine marble of the ancients, is found in immense strata in Arabia, though not peculiar to that country. This is a

* Mr. Colepress, in the Philosophical Transactions, tells us of a counterfeit sort of opal made at Haerlem in Holland, which he says is very lively, and supposes the several colours to be produced by different degrees of heat. When the composition is thoroughly melted, some of it is taken out on the point of an iron-rod, which being cooled, either in the air or water, is colourless and pellucid: but being put again into the mouth of the furnace upon the same rod, and there turned round for a little time, its particles acquire such various positions, that the light falling on them, being variously modified, represents the several colours seen in the natural opal. He adds, that these colours may be destroyed and restored again by different degrees of heat, putting the particles into different motions.

most beautiful and elegant stone, of a whiteness far surpassing the famous Parian marble, or that of Carrara in Italy, and indeed is the most splendid of all the marble class. It is always found perfectly pure, is moderately hard in the mass, but somewhat crumbly in small pieces, cuts very freely, and is capable of a beautiful polish. This stone, which is seldom brought to England, tho' plenty of it might be had, is what our more judicious workmen properly term White Alabaster; for that name is given indiscriminately to the white marbles in general. Dr. Hill recommends this elegant marble to the statuaries, for the making of it, as the ancients did, vases and such-like ornamental furniture, which were never more esteemed than in the present age.

THERE are also vast strata of a fine species of porphyry found in Arabia Petraea, as well as in the Upper Egypt. This is a roughish sort of marble, of a very compact and firm texture, considerably heavy, and of a pale flesh-colour, variegated with black, green, and white, in large blotches, from half an inch to an inch broad, and sometimes (though very seldom) disposed in irregular veins. It breaks with a tolerably even surface, and appears very lucid in all its parts, but rather glossy than glittering. It is extremely hard, takes a fine polish, and is so transparent, especially in the green parts, that one may see deep into its substance. The red, white, and green parts of this elegant marble, appear tabulated, resembling greatly the foliaceous talcs, but with an additional brightness; and the black are the same in all respects, only debased by a large mixture of earth, which makes them evidently softer than the rest of the stone. The white and flesh-coloured parts are slightly debased by an earth of those co-

lours; but the green, which have usually a fine metalline tinge, like that of the gems, are the brightest of all, and almost perfectly transparent.--- Separate nodules of this porphyry are frequently found in Germany and Ireland, and in some parts of England.

WE shall only add, that Arabia likewise affords plenty of a red granite, variegated with white and black, which, for its extreme hardness and beauty, has always been in the highest esteem. This is the Syenites of Pliny, and the Oriental Granite of the moderns; but very fine pieces of it may be found without going any farther than the west of England. It is of a very firm and compact texture, naturally breaking with a rough surface, considerably bright and glittering in all its parts, and capable of a most elegant high polish. From the mineral let us now proceed to the vegetable kingdom.

VEGETABLES.

AS we are now in Arabia, it seems natural to begin this article with the productions of that country, and in the first place to describe the Coffee-Tree, whose seeds or berries afford us such an agreeable liquor. This tree, or rather shrub, which grows plentifully in Arabia Felix, generally rises to the height of seven or eight feet, and sometimes to twelve, having a trunk from ten to fifteen inches in circumference. It is covered with a grey smooth bark, and shoots out, through the whole length of its stem, a growth of branches which are always opposite to each other. The leaves, which somewhat resemble those of the bay-tree, are ranged in pairs in the same manner; and from the bottom of these spring fragrant white flowers, very much like those of the jessamine, of which

which some reckon the coffee-shrub a species. When the flowers fall, they leave a small fruit behind, which is green at first, but reddens as it ripens, and is like a hard cherry both in shape and colour. Two, three, or more of these berries, grow together on the same part of the twig, each coated with a husk or tegument inclosing another finer skin, in which two seeds or kernels are contained, which are what we call Coffee. The fruit is usually gathered in May, which is done by shaking the trees, the berries falling on cloths spread underneath to receive them. These being laid on mats to dry in the sun, the outer husks are opened and separated by drawing rollers of wood or iron over them; after which the berries are exposed to the sun a second time, and then sifted clean for use or sale. The husks, however, are not wasted; for the Arabs roast them as we do the berries, and the drink made of them, having a little tartness, is very cooling and pleasant in the heat of summer.—The coffee-trees are propagated by the seed when perfectly ripe, and are disposed of in nurseries to be transplanted as there is occasion. They require a rich mould, and thrive best about the bottom of mountains and little hills which are moist and shady. In times of drought they are watered by artificial canals cut from rivers or springs, and in conducting little streams of water about their roots, consists the chief part of their cultivation. It was formerly imagined, that the Arabians steeped their coffee-berries in boiling water, or used some other means before their exportation, to make them unfit for growth, that they might not be deprived of the profits of the plant, by its propagation in other countries: but this mistake was owing to the difficulty of raising the shrub from seed, unless sown immedi-

ately after it is gathered. Of late years, however, the plant has been cultivated with success at Fort St. George, the Cape of Good Hope, Batavia, and other places; and the island of Jamaica now produces it almost in as great perfection as Arabia. In our own country, as well as in other parts of Europe, it may be seen in the gardens of the curious.

It is well known, that the preparation of coffee-berries consists in roasting them, or giving them a just degree of torrefaction, which is known by their acquiring a brownish hue equally deep on all sides; and for this purpose an earthen vessel is reckoned preferable to one of iron, or any other metal. A proper quantity being ground in a mill, and the powder infused in boiling water, makes a drink now much in use amongst us*, and of a
most

* The drink made of coffee-berries has been common in Europe for above fourscore years, and much longer among the Turks, though its origin is not well known. Some ascribe it to the prior of an Arabian monastery, who being informed, that the goats sometimes browsing on the tree, would keep awake and caper all night long, became curious to prove its virtue, and gave coffee to the monks to prevent their being drowsy at their nocturnal devotions. Others refer the invention of coffee to the Persians, from whom it was introduced at Aden in Arabia by the Dervises of that city, a sort of Mahometan monks, who drank it when they spent the night in prayer. Their example brought coffee into vogue at Aden, from whence it passed to Mecca, where it was first taken by the devotees, and then by the rest of the people. From Arabia the custom made its way to Cairo in Egypt, and from thence to Syria and Constantinople. Some Turkish doctors, indeed, opposed the introduction of this liquor, declaring it to be spirituous, and almost as inebriating as wine itself, which their laws forbid them to drink; but the Musti soon removed this difficulty, and coffee was vindicated from the imputation of any vinous quality, and allowed to be a lawful liquor. During the war in Candia, the assemblies of news-mongers making too free with state-affairs, the Grand Vizier suppressed the coffee-houses at Constantinople; which suppression, though still subsisting, does not prevent the pub-
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most agreeable flavour when its bitterness is taken off with sugar.—As to the virtues of coffee, it is universally allowed to be an excellent drier, carrying off fumes and disorders of the head arising from too much moisture, and absorbing acrimonies of the stomach, whence it is of service after a debauch of strong liquors; and it promotes watching, by bracing the fibres, and rendering them too tense for the relaxation required in sleep. It is esteemed efficacious for the cure and prevention of comatous disorders, proceeding from phlegm or a too viscid blood; and, in general, it is more proper for corpulent and phlegmatic persons, than for those of thin, lean, and bilious constitutions, as it dries up the nerves, and inclines them to tremors. By its volatile salts it removes obstructions of the brain, dries up its superfluous moisture, and consequently restores a due degree of elasticity to its membranes and vessels. It infallibly cures that species of head-ach which arises some hours after dinner from a bad digestion, and is of service in those proceeding from other causes. When made very strong, it is esteemed by some an excellent remedy for a nervous asthma; and is said to attenuate the blood, and promote urine. S. Pauli, a Danish physician, is of opinion, that it enervates men, and renders them incapable of generation;

lic use of coffee in that city. The custom of drinking this liquor prevails very much amongst the Turks in general, who seldom sweeten it with sugar; but their grandees add to each dish a drop of essence of amber, others boil it with two or three cloves, and others with a little Indian anise.—Coffee was first brought into France by the famous traveller M. Thevenot; and a Greek, called Pasqua, brought to England as a servant in 1652, by Mr. Edwards, a Turkey merchant, first set up the profession of coffee-man, and introduced the liquor amongst us, though some say Dr. Harvey had used it before.

and in the year 1695, it was defended in the schools of Paris as a thesis, that the daily use of coffee rendered both men and women unfit for procreation: but nobody will affirm this, who considers, that as numerous a progeny is brought into the world since the great use of coffee in Europe, as before. However, it is certainly prejudicial, if drank too frequently, or in too large quantities, without considering what the constitution will bear or requires.

THAT odoriferous gum or resin we call Frankincense, or simply Incense, anciently burnt in temples as a perfume *, distills spontaneously from the tree which produces it, during the heats of summer: but for all the great use of this gum, both in the ancient religion and the modern medicine, the tree that yields it, and even the place where it grows, is but little known. The most common opinion has always been, that it was the product of Arabia Felix, and found near the city of Sabe, whence its epithet Sabæum; and yet the name Olibanum, which it also bears, seems to intimate, that there are of these thuriferous or incense-bearing trees near mount Libanus in Syria, nor is it to be questioned, but there are others in the Indies. We are likewise at a loss as to the form of the tree producing incense, as Mr. Ray himself confesses. Theophrastus says it is about five cubits high, full of branches, with leaves resembling those of the pear-tree, and a smooth bark

* People of all religions formerly burnt incense in their temples, to do honour to the divinities that were there adored. Many of the primitive Christians were put to death, because they would not offer incense to idols.—In the Romish church they still retain the use of incense in many of their ceremonies, particularly at solemn funerals, bestowing it on persons they would honour, as prelates, &c. and sometimes also on the people.

like that of the bay-tree; but, adds he, others affirm it to be like the mastick-tree, bearing similar fruit, and a reddish-coloured leaf; and others assert, that both its leaves and bark resemble those of the bay-tree.

FRANKINCENSE is brought to us from Turkey and the East-Indies, formed into small drops, of a pale yellow colour, somewhat hard and pellucid, of a bitterish resinous taste and fragrant smell. Sometimes we have it in a mass, but that in drops is preferable. It is heating, drying, and sub-astringent; and is chiefly used internally, not only for various disorders of the head and breast, but against coughs, vomiting, spitting of blood, diarrhoeas, and dysenteries. Externally applied, it heals wounds, cures chilblains, mitigates malignant ulcers, removes redness and inflammation of the eyes; and some use it to assuage the tooth-ach, but it is apt to spoil the sound teeth. Fumigations of it are used to strengthen the brain.

MYRRH is another kind of gum or resin, issuing by incision, and sometimes spontaneously, from the trunk and branches of a tree growing in Arabia and Abyssinia, of which we have almost as little knowledge as of that producing incense. Authors indeed agree, that it is small and thorny, but differ about the form of its leaves. The incisions are made twice a year, and the myrrh oozing out is received upon mats spread under the tree for that purpose. The best is brought to us in little drops or tears, of a reddish-yellow colour, hard, transparent, bitterish, and of a strong disagreeable smell; and some of these, when broke, discover a kind of unctuous liquor, the most precious part of the myrrh, and the real *Stacte* of the ancients. This gum enters into several medicinal compositions, being of a heating, drying, and astringent

nature; and it makes a principal ingredient in embalming the dead. It is reckoned excellent in obstructions of the Uterus; and is recommended for infarctions of the lungs, hoarseness, coughs, quinseys, pleurifies, cholics, and for the worms. It is chewed to prevent infection from contagious diseases; and, being a good detergent, it is used in unguents for the healing of wounds and ulcers.

HERE it seems proper to take some notice of the vegetable productions of the Red Sea or Arabian Gulf, which abounds with a vast variety of marine plants of the stony kind, such as Madrepores, Fungi or Mushrooms, Brain-Stones, and other coralline bodies, which appear, when the sea is calm, like a grove or forest under water, particularly the branched madrepores, whereof some are six or seven feet high, spreading themselves like an oak, or shooting up pyramidically like a cypress. The branches of the madrepore are usually pinked with a great number of holes or pores, resembling waves, stars, leaves, or other figures. The fungus, or sea-mushroom, seems to be fastened to the rock by a small root, and, contrary to the land-mushroom, has its gills turned upwards. The brain-stone appears also to have a root *, and observes, like

* Dr. Shaw takes notice, that though nature has not given the marine plants one large root, as it has done to those of the land, yet that mechanism is wisely supplied by a number of little ones, which are distributed all over the plant in so just a proportion, that they are thicker upon the branches, where the vegetation is principally carried on, than in the stem, where it is more at a stand, and which therefore is often found naked, and seldom increases in the same proportion with the branches. The terrestrial plants could not subsist without large extensive roots, because they are to be thereby supported against the violence of the wind, and their food is to be fetched at a great distance: whereas the marine vegetables, as they are more securely placed, so they lie within a
nearer

like the fungus, a certain specific configuration, which is not usual in other coralline substances. —But we shall not enlarge at present on this subject, reserving a fuller account of the nature of coral, till we come to speak of the manner of fishing it up in the Persian gulf.

THERE is nothing of the vegetable kind in Syria or the Holy Land more celebrated than the cedars of mount Libanus or Lebanon, of which frequent mention is made in the sacred writings. This mountain, or rather chain of mountains, has formerly furnished vast quantities of cedar, which were used by the neighbouring princes in building their most beautiful and stately edifices, and particularly by King Solomon, in the temple of Jerusalem and several of his palaces. These famous trees, however, are now reduced to a small number, some of which are remarkable for their age and prodigious bulk; and one in particular is said to be thirteen yards in circumference, and its branches to spread every way round it for about forty paces. Some yards from the ground the trunk divides itself into five limbs, each of them as big as a great tree; but few of the cedars come near to these dimensions. These trees are green all the year, bearing leaves much like those of our juniper; and the large ones are remarkable for spreading their tops into a perfect round, whereas the smaller ascend in form of a pyramid. They have a fragrant smell, and some of them bear a large conical fruit like that of the pine, but smoother, and of a browner colour, and growing in clusters at the ends of the branches with the point upwards. The bark is smooth and brown,

nearer reach of their food, growing as it were in the midst of plenty; and therefore an Apparatus of the former kind must have been unnecessary, either to nourish or support them.

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the wood towards the outside is white and soft, but harder towards the middle, and of a reddish colour. It is so bitter, that no worm will breed or harbour in it, which is the cause of its being incorruptible. The wood of the cedar is also said to prevent the putrefaction of animal bodies; and the saw-dust of it is thought to be one of the secrets of those who pretend to the mystery of embalming.

IN Judæa and Arabia Felix grows a tree which yields by incision that fine native balsam called the Balm of Gilead. It is an ever-green, having leaves like those of rue, and white flowers in the form of stars, from whence spring out little pointed pods, inclosing a fruit like an almond. The juice is white at first, afterwards becomes green, and when old of the colour of honey. It easily dissolves in the mouth, has a bitter and astringent taste, and a brisk agreeable smell. Pomet esteems it an excellent diaphoretic in malignant fevers, and of great efficacy in detaching ulcers of the lungs, kidneys, and bladder; it is also used externally in the cure of wounds not attended with contusion.—The ancients called the wood of this tree *Xylo-balsamum*, its fruit *Carpobalsamum*, and its juice or tears *Opo-balsamum*; but many are of opinion, that the true genuine species is not now to be met with in any part of the world. However, there is reason to think, with Hoffman, and some others, that the Balsam of Mecca is the true Balm of Gilead, as it possesses all its virtues, only is hardened, and its colour altered.

AMONG the variety of trees and plants that grow about the plains of Jericho, there is a prickly shrub with narrow leaves, which bears a sort of green plum, resembling a small unripe walnut

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both in shape and colour. This fruit is called Zaccone by the Arabs, who pound the kernels of it in a mortar, and then put them into scalding water; to the top whereof, after it has stood some time, rises an oil, which they skim off carefully and preserve in bottles. This oil they esteem as a very valuable remedy, preferring it even to the Balm of Gilead, either applied outwardly to green wounds, or taken for inward contusions.

NOR must we forget to mention the Roses of Jericho, as they are called, which are a curiosity taken notice of by several judicious travellers; though the stories of their giving ease to women in labour, and blowing only on Christmas-Eve, or on all the festival days of the Blessed Virgin, &c. are too ridiculous to want confutation. These roses, we are told, grow up in bunches, composed of three small flowers, which are first of a red colour, but grow whitish by degrees, and shut and open themselves like those of alder. What they are remarkable for is this, that being put in water for a little time they begin to blow and expand themselves, and being taken out of the water they soon dry and close up again; so that in all seasons of the year they may be made to blow at pleasure. M. Thevenot says, he has seen of the flowers in the desarts about mount Sinai; so that they are not peculiar to the plain of Jericho, as some have imagined.

IN several parts of Anatolia, and particularly about Erzerum, grow vast numbers of white poppies, from the heads of which is drawn a narcotic juice, afterwards inspissated and brought to us in lumps, of a blackish-brown colour, sometimes reddish, of a bitter taste, and a very disagreeable smell. This is that excellent drug we call Opium, which some distinguish into two kinds;

kinds; the one flowing of itself through incisions made in the heads of the poppies, and properly called Opium; the other obtained by expression, and termed Meconium. The former of these is preferable on all accounts, the latter being generally very impure, for the Levantines, to shorten their labour, and to get the more juice, squeeze it equally from the heads, leaves, and even stalks of the plant, and then reduce it by fire to the thickness of an extract; though some say it is drawn by decoction, and afterwards inspissated.—Opium is certainly a very valuable medicine when prudently administered, but the abuse of it is great and destructive. It excites sleep, whether taken inwardly, or externally applied; it soothes pain, raises the spirits, and occasions the most agreeable sensations. It ought never to be taken on a full stomach, because it hinders digestion and commonly proves emetic; and it is observed that this and all other narcotics, if given unseasonably, and for a long continuance of time, quite destroy the appetite, and bring on hickups, nausea, and habitual vomitings. Those who begin to take opium ought to venture only on a very small quantity at first, because the effects of the same quantity are very different on different constitutions, and there is no knowing, but by experience, how much any person can bear. It is also certain, that they who accustom themselves to take opium frequently must often increase the dose, otherwise it gradually loses its efficacy; in-somuch that half a dram may become requisite to produce the same effect that half a grain would have done when they first began the practice. Its usual dose is from half a grain to two grains, but those who have long habituated themselves to it can take fifty or sixty; and Geoffroy mentions
a woman

A woman who took seventy-two grains every day, merely to ease the pain of a cancerous breast. The Turks, whose law commands them to abstain from wine, have supplied its place with this intoxicating drug, which custom has enabled them to eat in such quantities, as would absolutely poison people who were not accustomed to take it. A dram in a day is their usual quantity, but some take much more*; and M. Tournefort tells us, that the Dervises, a sort of religious amongst them, are so habituated to the use of opium, that they swallow it by ounces at a time; but this has been supposed to be greatly exagge-

* Dr. Smith gives an account (in the Philosophical Transactions, No. 221.) of one Mustapha Satoor, an inhabitant of a village near Smyrna, by trade a coffee-man, about forty-five years of age, whose constant dose of crude opium was three drams a day, one half of which he took in the morning, and the other in the afternoon; but that he could safely take double that quantity. The doctor, resolving to be an eye-witness of this man's performance, provided the best opium he could get, and weighed it nicely into drams; of which the Turk one morning took a dram and a half, made up into pills, chewing them with a little water. The visible effects the opium had upon him were the making his eyes sparkle, and giving a new air of life and brightness to his face. At three o'clock in the afternoon he came to the doctor again, and took the same quantity, and appeared after it with the same symptoms, alledging that it always had the like effect, giving him vigour and spirit, and that it was become as necessary to him as any other part of his sustenance; that it made him fitter for procreation; that it never affected him with sleep or drowsiness, but rather hindered his repose when he happened to take too large a dose; that he had used it for five and twenty years, beginning with the bigness of a grain, and gradually proceeding to larger quantities; and that the want of it, and the desire of taking it, grew daily upon him. The ill effects of this practice, however, were evident enough; for his body was weak, his legs wasted, his gums eaten away so that the teeth stood bare to the roots, his complexion was yellow, and he appeared older by twenty years than he was in reality.

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rated; however, the use of opium in Turkey is far from being so common as it was formerly. But that people may bring themselves, by degrees, to make use of such a quantity of opium, as would cause immediate death to those unaccustomed to take it, appears highly probable; and M. Tournefort's expression, which appears to be so hyperbolic, is rendered the less improbable from Mr. Grose's observation, that the hard labouring people of Surat, in India, and especially the porters, who get their living by carrying goods to and from the warehouses, and bear loads of very great weight, have contracted such a habit of taking it, that he was credibly assured, some of them would take at one dose considerably above an ounce. Many of the great and wealthy of that country also contract a habit of it, from their considering it, not only as a high point of sensuality, on account of the pleasing deliriums they experience from it, but as an extraordinary provocative: they usually take it in milk, boiled away from a large to a small quantity; and when they would put an end to its operation, swallow a spoonful or two of lime juice, or any other acid of the same kind; but those who use it, by thus forcing nature, wear out its springs, and prematurely bring on all the inconveniencies of old age; a consideration of little weight with the luxurious Easterns, who are generally more actuated by present enjoyments, than a regard for the greatest remote advantages.

THE best opium in the world is said to be produced in India, particularly on the banks of the Ganges; where some kinds of it are of an amazing strength, of which Mr. Grose mentions a remarkable instance; a Nabob of those parts, having invited an English factory to an entertain-
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ment, a young writer in the company's service, sauntering about the garden, plucked a poppy, probably apprehending no greater danger from it than is to be found from the poppies of England; but he soon fell into a profound sleep, of which the Nabob being informed, eagerly enquired with much concern of the particular bed, out of which the poppy was gathered; and being told; he, with strong expressions of sorrow, apologized for his having supposed, that the nature of poppies was too well known to require any warning, especially as the taste was far from being tempting; but that the sort which the English gentleman had the unhappiness to pitch upon, admitted of no human remedy, and nothing could save him. This, says our author, was really the case; for that was his last sleep.

It will not be improper to add, while we are treating of opium, to prevent our entering upon this subject again, when we come to India, that the people there pretend, that it has a strange paradoxical mixture of effects in its operation, causing, at once, a seeming heaviness of the head, an apparent sleepiness of the eye, and yet an extraordinary watchfulness; in confirmation of which, we are told by Mr. Grose, that the people of Surat relate the following story: one of the governors of the town receiving a visit from a Gentoo rajah, at a garden without the city walls, they met, each attended by his guards. As they were walking, the governor took notice of the rajah's guards, who were squatted down after their manner in an open guard-room, with their heads leaning on their naked swords, and in appearance, either dosing, or fast asleep. The governor observed with a smile to the rajah, that he had a very just opinion of his good faith, since
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he would venture this interview with guards in such a condition, from the opium he knew they were accustomed to take. "That, says the rajah is a mistake; and if there be any body here, for whom thou hast no concern, bid him pluck a flower as softly as he pleases out of any of their turbans". The governor instantly ordered a person who was near him to do what the rajah had mentioned. The man obeyed; he proceeded with the utmost caution, and approaching him who seemed the most overcome with sleep, snatched off the flower. Instantly the rajah's guard felt what was done, and without more ceremony, at one stroke, cut off his arm, and the rest were instantly on their feet. Thus, says our author, was the governor convinced of their vigilance, at the expence of a servant, who, whether he was innocent, or so guilty as to deserve being exposed to such a trial, was probably thought of no consequence, under that arbitrary government.

BUT to return, the Turks and other eastern nations usually take about a drachm of opium, when they are going to battle; and the messengers, who are obliged to travel with great expedition, generally take some when they are weary, which gives them a fresh supply of strength and spirits.—Our practice of using a preparation of opium, which we call Liquid Laudanum, is not to be commended; for crude opium answers all intentions much better, and the dose of it is more easily ascertained.

AFTER this survey of the continent, some of the vegetable productions of the Asiatic islands in the Archipelago deserve our attention, particularly those of Chios, now Scio, where the Lentisk, which yields a valuable gum called Mastich, grows in great abundance. There are twenty villages in

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Scio where they have plantations of lentisks, each of which villages is obliged to pay annually to the Grand Signior a certain quantity of mastich; according to the number of trees they cultivate. This tree commonly grows to the height of ten or twelve feet, spreading its branches in a circular manner, which in time become crooked, and bend towards the ground. The trunk is about a foot in diameter, covered with a rugged ash-coloured bark; and the leaves are disposed in couples, being broadest in the middle, and growing narrower towards each extremity. From the junctures of the leaves spring flowers in clusters like grapes, in which manner the fruit also grows, having a white kernel in each berry. In the beginning of August they make incisions in the bark of these trees, cutting it cross-ways with large knives, and from thence the nutritious juice distills in small drops, forming the grains of mastich, which hardening on the ground, are carefully swept up and sifted. About the middle of August they gather the greatest quantities, if the weather be dry and serene; but if it be rainy, the tears are all lost. Towards the end of September the mastich flows again, but not so plentifully as before, and perhaps not altogether of so good a quality. When it is sifted, the dust that flies from it sticks so fast to the faces of persons employed in that business, that they are forced to use oil to wash it off.

THE Turks take much delight in chewing mastich, sometimes burn it among other perfumes, and sometimes put a few grains of it into their bread, to give it an agreeable flavour. The ladies of the Grand Signior's seraglio consume great quantities of this gum, chewing it by way of amusement, or to sweeten their breath, especially in a morning fasting. It is of considerable use in
 medicine,

medicine, being moderately warm, drying, and emollient, so that it strengthens the stomach, stops vomiting, cures coughs and spitting of blood, and fortifies the head and nervous system. If good, its granules are dry, almost transparent, of a pale yellow colour, have a fragrant smell, and a resinous astringent taste,

THE Terebinthus, or turpentine-tree, is also the product of Scio, where it grows, without culture, on the sides of the highways, or on the borders of vineyards. It is as tall and spreading as the lentisk, has a bark much of the same colour, and leaves of the same shape, but longer and broader. The flowers grow in bunches, having each of them five Stamina, whose Apices are full of a yellowish dust or Farina. The fruit likewise appears in bunches three or four inches long, which rise from the center of a cup consisting of five small pointed leaves; but each embryo afterwards turns to a cod of an orange-colour, inclosing a white fleshy kernel with a reddish coat. In the months of August and September they make incisions in the trunks of these trees, and the turpentine runs down upon flat stones placed underneath to receive it. This liquor is of a whitish colour, with a greenish cast, clear, and almost transparent, of a pleasant smell, and undoubtedly the best of all turpentines for internal use. It is a most excellent natural balsam, and very detergent, being prescribed as such in abscesses and ulcers, especially those of the lungs, breast, and urinary passages, which last it remarkably cleanses from gravel and mucous concretions. It is a very great diuretic, and for that reason M. Tournefort thinks it improper for persons troubled with the stone, to whom medicines of that nature do rather harm than good, as has been found by experience.

Turpentines

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Turpentine in general are so extremely penetrating, that, when applied externally, they enter the pores of the skin, and communicate a smell to the urine; and even by sitting in a room that has been lately painted, the urine has often been known to be affected in the same manner. The Terebinthus grows also in Cyprus, but the turpentine brought from thence is browner and fuller of dross than that of Scio, which is indisputably the best of any, though not much in use on account of its scarcity*.

WE cannot leave Scio without giving an account of their curious method of cultivating and ripening their figs, which the ancients called Caprifigation, and which some modern naturalists have looked upon as a mere chimera; but M. Tournefort has put the matter entirely out of doubt, by giving us the whole process, as he learnt it in the island of Zia, where it is likewise practised. To understand rightly this extraordinary kind of husbandry, we must observe, that in

* We have several kinds of turpentine, whereof that of Strasbourg, produced by the Abies or silver fir, is most commonly used amongst us; and by many it is preferred to that of Venice, from which it is distinguished by its green hue, its clearness, its extraordinary fragrancv, and citron-flavour. Properly speaking, there is no such thing as Venice turpentine; for though a turpentine was formerly brought from thence, what now goes by that name comes from Dauphiné. This is of a yellowish colour, of the consistence of new honey, of a bitterish taste and grateful smell, and flows from the larch-tree either spontaneously or by incision. That flowing naturally is a kind of balsam, frequently substituted for that of Peru, to which it is not inferior in virtue. What is obtained by incision, after the spontaneous discharge is over, is of considerable use, particularly for making the best white varnish. The turpentine of Bourdeaux, which is whitish and thick as honey, does not ooze from the tree in the manner it is sent to us, but is a composition of several ingredients.

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most of the islands of the Archipelago they have two sorts of fig-trees; the first called Ornos, from the old Greek Erinos, a wild-fig-tree, the Caprificus of Pliny; and the second the domestic or garden fig-tree. The wild sort, says our author, bears three kinds of fruit, called Fornites, Cratitires, and Orni, of absolute necessity towards ripening the garden-fig. In August the Fornites appear, which hold to November without ripening; and in these are bred small worms that turn to a sort of gnats, no where to be seen but about these trees. Towards the end of September the Cratitires shew themselves, into which the gnats of the former fruit make punctures, and the Fornites decay and fall off when the gnats have left them. The Cratitires remain on the tree till May, inclosing and nourishing the eggs deposited in them by the gnats of the Fornites when they made the aforesaid punctures. In May the Orni, the largest of the three sorts of fruit, begin to appear; which, when grown to a certain size, are pricked just where the bud opens, by the gnats issuing from the Cratitires. But sometimes it happens, that the gnats of this second fruit do not come forth so soon as the Orni of the very same tree are disposed to receive them; in which case the husbandman is obliged to bring Cratitires from another tree, and fix them on the branches of that tree whose Orni are ready for the puncture; for if this be neglected, the Orni fall, and the gnats of the Cratitires afterwards fly away. It requires a thorough acquaintance with this sort of culture, as M. Tournefort observes, to know the critical juncture when the fruit wants such assistance; and in order to this, the bud of the fig is to be watched with the greatest attention, as that part not only indicates the time when the prickers are ready to

come

come forth, but also when the fig is to be pricked with success. If the bud be too hard, the gnat cannot inject its eggs; and the fruit drops when the bud is too much expanded.—But to come to the purpose to which the wild fig-tree is made subservient. During the months of June and July, the peasants take the Orni, when their gnats are ready to break out, and carry them to the garden fig-tree; in which they are obliged to observe the greatest exactness with regard to the time, for otherwise the Orni drop, and the fruit of the domestic fig-tree, not ripening for want of its proper puncture, soon falls in like manner. Of this the husbandman is so sensible, that he never lets a morning pass without making a careful inspection into the state of his Orni, transferring those which are in forwardness to his garden fig-trees. On this depends the goodness of his crop; and, in short, by his care and proper management of the Orni, the garden-figs become ripe in about six weeks from the time of their receiving the puncture of the insect.

WE shall conclude this article with our author's ingenious conjecture as to the manner in which the puncture of the gnat produces such a wonderful effect. Perhaps (says he) the prickers contribute to the maturity of the garden-fig, by causing the nutritious juice to extravasate, whose vessels they tear asunder in depositing their eggs. Perhaps too, besides their eggs, they leave behind them some sort of liquor, proper to ferment gently with the milk of the figs, and make their flesh tender. The figs in Provence, and even at Paris, ripen much sooner for having their buds pricked with a straw dipped in olive-oil. Plumbs and pears pricked by some insect do likewise ripen much the faster for it, and the flesh round the

puncture is better tasted than the rest. It is not to be disputed, (continues he) but that a considerable change happens to the contexture of fruits so pricked, just the same as to the parts of animals pierced with any sharp instrument.

A N I M A L S.

THERE is scarce any creature more famous among ancient and modern writers than the Chameleon, an animal of the lizard kind, and frequently found in the neighbourhood of Smyrna, especially about the old walls of the castle, where they breed amongst heaps of ruins. The head of the chameleon is somewhat larger than that of the common lizard, its back gibbous like a hog's, and its four feet are divided into claws resembling those of a parrot. It has a long flattish tail, of great use to it in climbing, for by that it will hang to the branches of a tree, and so draw up its whole body, of which Sir George Wheler gives us a remarkable instance, who having put a little chameleon into a deep glass, the animal, by standing on its fore feet, and raising itself up backwards, caught hold of the edge of the glass with its tail, whereby it drew up its body, and had like to have made its escape. The structure of its belly seems to be all thorax or breast, having ribs from the neck to the beginning of the tail, the larger of which tend backwards from the spine, and the others forwards from the extremities of the former. Its lungs reach almost the length of its body, consisting of a membranous substance very thin and transparent, and resembling a little light froth, having a multitude of cells or divisions. The skin of the animal is grained with globular inequalities, like shagreen, the largest whereof are about the head, the next on the ridge of the back,

back, and the next on the legs, the finest of all being on the sides and belly. It has no ears that can be discerned, but has two small apertures in the head, which serve for nostrils. Its head is immoveable, unless as it turns with the body; but, to make amends for this defect, nature has given it very fine eyes, about the bigness of a pea, which are covered with a skin almost like that of the body, the grain being in circles that diminish gradually to the center, where there is a hole no bigger than a pin's head, through which the light is received. These eyes are quite independent of each other, and capable of all the different motions that can be imagined; for the animal can either turn them both the same way, or one backwards and the other forwards, one upwards and the other downwards, or can keep one fixed upon any object, whilst the other is moving according to the motion of another object, as Sir George Wheeler and Dr. Spon frequently observed, to their great astonishment. The tongue is contained in a sort of sheath or strong membrane, from whence the chameleon darts it with surprising swiftness upon flies that come within its reach, which stick to a glutinous or viscous matter excreted from it, and by that means are drawn into its mouth. Mr. Moore says, he has seen a chameleon at Joar in Africa catch thirty or forty flies at a time with his tongue, which he can shoot out eight or ten inches; and indeed flies are the ordinary food of the chameleon, signs of which have been discovered in its excrements, and in the stomachs of some that have been dissected: so that it is a vulgar error to suppose these animals live upon air only, though it is certain they will live a great while without taking any visible sustenance, like serpents, and other creatures of the same cold nature; and

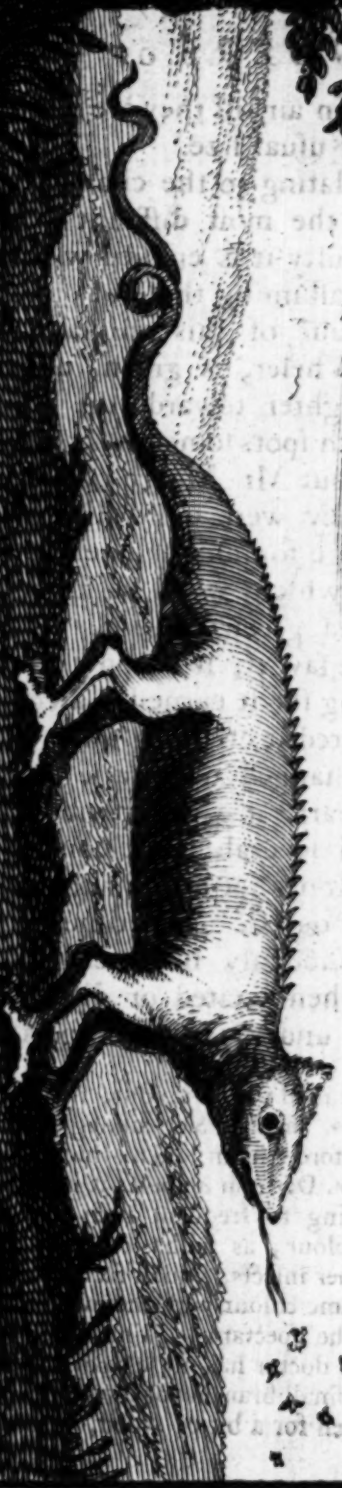
sometimes they will suck in air till they are swelled considerably beyond their usual size.

BUT of all things relating to the chameleon, the most amazing, and the most difficult to be accounted for, is the faculty it is endued with of changing its colour, and assuming those of objects near it. The usual colour of this animal, according to Sir George Wheler, is green, darker towards the back, and lighter towards the belly, inclining to a yellow, with spots sometimes reddish and sometimes whitish; but Mr. Moore observed, that when they slept they were generally of a bright yellow. Sir George found a chameleon on the top of a green bush, which, when he first cast his eye upon it, appeared green likewise*; but as soon as it perceived he saw it, it dropp'd to the ground; and after looking for it earnestly a considerable time, he discovered it creeping away to a hole in a rock, being changed to a dark brown colour, exactly like the earth it crept upon. The same gentleman observed several chameleons of a greyish colour, like the stones speckled with moss, amongst which they harboured. Sometimes from a green all over, they suddenly become full of black spots, especially when excited or disturbed. If laid on a napkin, or under a white cap, they

* Pliny tells us of a beast called the Tarandus, that could assume the colour of the trees, shrubs, &c. amongst which he hid himself, and was therefore seldom taken: but if there be any truth in the story, Dr. Derham supposes it must proceed from the animal's chusing to frequent such places as were agreeable to its own colour; as he has constantly observed of caterpillars and other insects, which fix themselves on such things as are of the same colour with themselves, and thereby deceive the eye of the spectator. Thus the caterpillar that feeds on elder, the doctor has more than once seen so cunningly adhering to the small branches of its own colour, that it might easily be mistaken for a bit of wood, even on a careful inspection.

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Hammeton



become whitish, or of a cream colour, but they are not known to change to red or blue, though laid upon cloth of those colours for a long time together. In short, it is far from being true, that they change their colour according to every object or body near them, nor do the changes seem to be regulated by certain and inviolable laws; the same causes not always producing the same effects. Mr. Moore has observed them change their colour twenty times in a day, sometimes to that of the object near them, but not always; that their mutations do not appear to be insensible, but at the pleasure of the animal. It is that as it will, the manner in which they are affected is one of those secrets of nature, that have not yet been thoroughly discovered by the most sagacious experimenters.

Many effects are not at all agreed as to the nature of them. act of the chameleon's changing its colour. Some say it is effected by insensible pores, as the chameleon by the insensible disposition of the parts that correspond to which give a different insensibility to the rays of light. Goldard relates the change to the glands of the skin, pushing of the skin, which in the lowest position being may show several colours; and, when the creature is in full vigour, may have the effect of a mirror, and reflect the colours of adjacent bodies. But these hypotheses being all defective, we must have recourse to another, which seems to be better founded; for the chameleon being constantly very thin skinned animal, and yet capable of making itself appear flat and plump at pleasure, it must have an extraordinary command over its skin as to tension or laxity. The animal having it in its power to fill the skin more or less, it is able not only to alter the tone and texture of the skin, or whilst their reflexive quality in a great measure depends, but also to bring parts into light which before lay concealed, or to copy, such as before lay open; and it is highly probable, that the parts usually covered are of a colour somewhat different from those constantly exposed to the air. On this supposition, it is evident, the chameleon has a power to reflect different coloured rays from the same parts, and to make

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Become whitish, or of a cream colour; but they are not known to change to red or blue, though laid upon cloth of those colours for a long time together. In short, it is far from being true, that they change their colour according to every object or body near them, nor do the changes seem to be regulated by certain and invariable laws, the same causes not always producing the same effects. Mr. Moore has observed them change their colours twenty times in a day, sometimes to that of the object near them, but not always; so that these mutations do not appear to be involuntary, but at the pleasure of the animal. Be that as it will, the manner in which they are affected is one of those secrets of nature, that have not yet been thoroughly discovered by the most curious enquiries*.

THE

* Naturalists are not all agreed as to the reason or manner of the chameleon's changing its colour. Some, as Seneca, suppose it is effected by suffusion; others, as the Cartesians, by the different disposition of the parts that compose the skin, which give a different modification to the rays of light. Dr. Goddard ascribes the change to the grains or globular inequalities of the skin, which, in the several postures, he thinks may shew several colours, and, when the creature is in full vigour, may have the effect of a mirror, and reflect the colours of adjacent bodies. But these hypotheses being all defective, we must have recourse to another, which seems to be better founded; for the chameleon being represented as a very thin skinny animal, and yet capable of making itself appear flat and plump at pleasure, it must have an extraordinary command over its skin as to tension or laxness. Now the animal having it in its power to fill the skin more or less, it is able not only to alter the tone and texture of the fibres, on which their reflexive quality in a great measure depends, but also to bring parts into sight which before lay concealed, or to conceal such as before lay open; and it is highly probable, that the parts usually covered are of a colour somewhat different from those constantly exposed to the air. On this supposition, it is evident, the chameleon has a power to reflect different coloured rays from the same parts; also to make

THE sheep in the country about Smyrna are a curiosity that ought to be mentioned, on account of their large tails, which are indeed mere lumps of fat hanging to the rump of the animal, and often weighing (to speak within compass) ten or twelve pounds or upwards. This fat, when the sheep are old, is no better than tallow; but that of lambs is esteemed as good as any marrow. These sheep are not peculiar to Anatolia, but are common in Syria, Persia, and other parts of the east, as we are informed by travellers, who speak of some in those countries, whose tails are so thick and long as to weigh twenty-five or thirty pounds, and are therefore laid upon a light sort of carriage which the sheep draws after it, as well to ease the creature of its burden, as to prevent the wool from being spoiled by trailing on the ground.

NOT only the sheep of Anatolia, but the goats also, are taken notice of by travellers as an extraordinary species. In the champaign of Angora, formerly Ancyra, they breed the most beautiful goats in the world, their hair being of a dazzling whiteness, as fine as silk, naturally curled in locks eight or nine inches long, which is worked up in the finest stuffs, especially camblet. Little of this hair is exported unspun, the people of the country being employed in spinning it into thread, which is manufactured at Angora without mixture, contrary to what is practised in Europe. M. Tournefort says, these goats are only to be seen within four or five days journey of Angora, the breed degenerating if they are carried farther.

AMONG the domestic animals to be found in the Asiatic dominions of the Turks, perhaps none

some parts reflecting, and to prevent others reflecting: and hence proceed those changes, and that medley of colours, for which this animal is so remarkable,

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deserves our notice more than the Camel, of which there are great numbers in Arabia. These creatures are wonderfully fitted by Providence for travelling through hot sandy deserts, being able to go four or five days (some say seven or eight) without water. For this reason they are very much used in long journies, taken by merchants who go in large companies called Caravans, to prevent their being plundered by robbers, with which the eastern countries are much infested. The camels browse on the little shrubs they find by the way, or if they meet with nothing of that nature, half a gallon of beans and barley, or a few balls made of the meal, which travellers generally carry along with them, will nourish one of them for a whole day. Their usual burden is seven or eight hundred weight, with which they travel about two miles and a half in an hour, and their day's journey is frequently twelve or fifteen hours. The camel has a protuberance on its back, is generally of a brownish colour, and is said to live to the age of fifty, and sometimes to a hundred years. It has a fleshy foot, which is well adapted to the hot sandy countries, where a hoof would sooner be destroyed. They are taught to lie down to receive their burden; and when the day's journey is over, travellers usually bind one of their legs, to prevent their rising, or else tie the creatures together with a small rope, that they may not stray away without disturbing one another. The Arabs do not kill this creature for food; but the Turks eat the flesh of the young ones, which they reckon a great dainty.—There is a species of these creatures we call Dromedaries, which are of a finer shape than the common camel, and have a less protuberance on the back. They will pace and gallop very swiftly, and it is

said will easily carry a person a hundred miles a day; nay, some of the Arabs affirm, that a dromedary will travel as far in one day, as one of their best horses will in six or seven. Its upper lip is cloven in the middle like a hare's, and it has two broad nails on its feet, which are round and fleshy, without division. We are told that dromedaries are blind some days after their birth, like puppies or kittens.

THE Hyæna is a fierce animal, that is frequently found in Anatolia. It lives chiefly in the rocky hills and mountains, and in many particulars resembles a wolf, but is more crafty and voracious. It is nearly of the same size as a wolf, but is more hairy, and has bristles on its neck, back, and head. Authors have given different accounts of the colours of this animal; some would have them to be of the same colours as a wolf; others say, that in this particular they resemble a bear; others represent them as of a gold colour; and others again affirm, that they are variegated with blue stripes: indeed it is not improbable that they are of different colours. Some authors have pretended, that this animal will imitate the human voice, and even learn the names of the shepherds, in order to call them out and devour them: but this is far from being true; for they are fonder of the flocks than of the shepherds, and never attack men, but in their own defence, or through excess of hunger; yet they will dig up graves whenever they can come at them, and, taking out the dead bodies, devour them; but perhaps this is only when pressed by the severity of hunger, and for want of a more delicious morsel.

THE Jackal is another animal common in these parts of Asia, which, though not much bigger

The Hyæna.

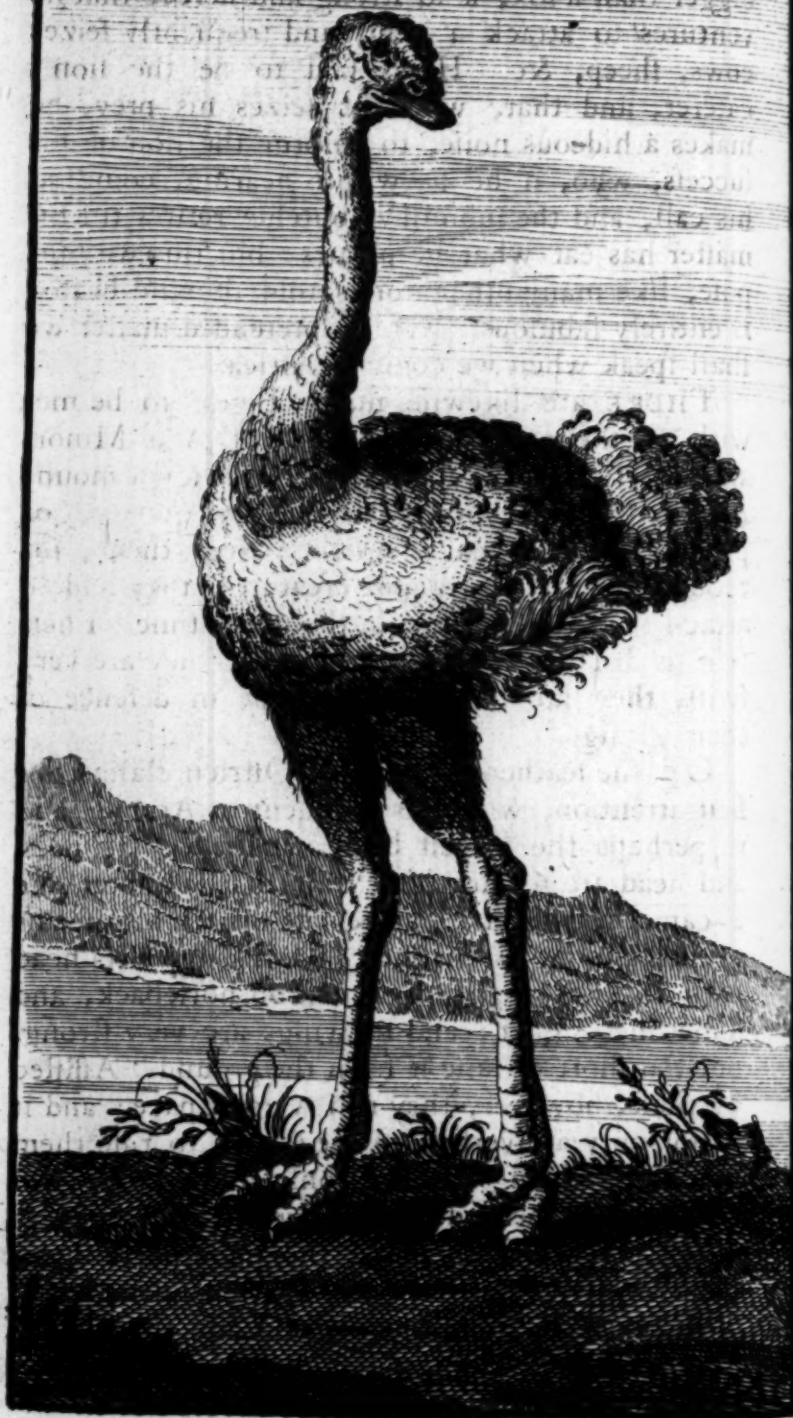
The Hyena.







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bigger than a fox, is so strong and fierce, that he ventures to attack a man, and frequently seizes cows, sheep, &c. He is said to be the lion's caterer, and that, when he seizes his prey, he makes a hideous noise, to inform the lion of his success, who, if he be within hearing, comes at his call, and the submissive butcher retires till his master has eat what he pleases: but this we suppose, like many other stories told of wild beasts, is entirely fabulous. Of his pretended master we shall speak when we come to Africa.

THERE are likewise many Tigers to be met with in the mountainous parts of Asia Minor, and M. Tournefort speaks of several upon mount Ararat, which walked about very quietly, or played at a reasonable distance from them; for though they are ravenous creatures, they seldom attack their prey, except in the night-time. Their skin is beautifully spotted, and as they are very swift, they are seldom taken but in defence of their young.

OF the feathered kind, the Ostrich claims our first attention, which is frequent in Arabia, and is perhaps the largest bird in nature. Its neck and head are remarkable, being shaped almost like a camel's, which creature the ostrich also seems to imitate in its manner of walking. Its head rises to the height of a man on horseback, and sometimes higher; and its wings are very strong, but too short to raise it from the ground. Assisted by these, however, they run a great pace; and it is not only a diversion to the Arabs to ride them down, but brings them a considerable profit; for they have a method of shaking the dead body of an ostrich, so as to make the fat dissolve into a sort of oil, which they carry to Alexandria, where it is used as an ointment, and sometimes taken

inwardly for disorders arising from a cold constitution. The legs and thighs of this bird are like a heron's, allowance being made for the different proportion; and each foot has three claws armed with horn, to facilitate its march.—Her eggs are said to be as big as the head of a young child, and to be finely veined like marble, which she hides inconsiderately in the sand, and leaves them to be hatched by the heat of the sun. This disposition, which seems to manifest so much disregard to her young, is taken notice of in the sacred writings*, and certainly argues a great want of that precaution observable in other animals. But there is another circumstance related of the ostrich, which shews an uncommon stupidity, viz. that when she is pursued by the hunters, she runs to hide her head, and particularly her eyes, behind a tree, leaving her large body exposed to view, and ima-

In Job xxxix. we read, that “the ostrich leaveth her eggs in the earth, and warmeth them in the dust, and forgetteth that the foot may crush them, or that the wild beast may break them. She is hardened against her young ones, as though they were not hers: her labour is vain, without fear, because God hath deprived her of wisdom, neither hath he imparted unto her understanding;” that is, as Dr. Derham explains it, he hath denied her that wisdom, that natural instinct to provide for and nurse up her young, that most other creatures are endued with. It is not very strange (the doctor thinks) that no other incubation than the sun should produce their young, but it is very odd and wonderful, that any one species should vary from all the rest of the tribe. The singular care of the Creator, in this case, is likewise very remarkable, in supplying some other way the want of care and affection in the parent-animal, so that the young should, notwithstanding, be bred up in the large and barren deserts of Arabia and Africa, the most unlikely and improper places (in all human opinion) to afford sustenance to young helpless creatures; but the fittest, therefore, to give demonstrations of the wisdom, care, and especial providence of the infinite Creator and Conservator of the world.

gining,

gining, that as she no longer sees her pursuers, the danger is over, and she has nothing to apprehend.—What is reported of this animal's eating and digesting iron, has much the air of fable; for though they will swallow small bits of that metal, and little pebbles, it is only to bruise and grind the food in their stomachs, to moderate the operation of an excessive heat, or by its weight to open a passage into the intestines; for they do not digest them, they coming from them in much the same condition in which they were swallowed.—The feathers of the ostrich are used by way of ornament on testers of beds, canopies, &c. and our theatrical heroes owe much of their grandeur to the plumes of this animal.

In the plains near the river Araxes, M. Tournesfort took notice of several remarkable sorts of birds, and amongst the rest he observed a species of herons, whose bodies were no bigger than a pigeon, though their legs were a foot and a half long. But nothing (says that traveller) comes up to the beauty of an admirable bird, as large as a raven, with black wings, the feathers on the back, towards the rump, of a purple colour, and those towards the neck of a shining gold green. The feathers on the middle of the neck are of a bright flame-colour, and those on the head of a dazzling green, which is crowned with a tuft of the same colour. The bill of this bird is brown, like that of a raven.

THE tame partridges in the island of Scio are too great a curiosity to be passed over in silence. In the morning, we are told, the country people drive them into the fields to seek their food, each family trusting its stock to a common keeper, who in the evening calls them home again with a whistle: or if an owner has a mind to have his

brought home in the day-time, the same signal does the business, the birds following it without the least confusion. This may appear a little incredible, but we have M. Tournefort's authority for the truth of it; who likewise says, he has seen a man in Provence that used to lead droves of partridges into the country, and call them to him when he pleased, having them so entirely at command, that he would take them up in his hand, put them into his bosom, and afterwards dismiss them to pick up a livelihood with the rest of the flock.

We shall finish this article with an account of the Purple-Fish, anciently found in the Mediterranean, near the city of Tyre, whereof we have descriptions in several authors, and shells in most of the cabinets of the curious. This celebrated fish is a kind of Buccinum, a name given by the ancients to all fishes whose shell bears any resemblance to a hunting-horn; and it appears from Pliny, that from such a shell-fish the so much famed purple was obtained. This rich dye seems to have arrived at its highest perfection in Pliny's days, in the reign of Vespasian, when the artists of the imperial city of the world strove to excel each other in preparations of that tinging juice, to gratify the luxury of the great men of those times; for this colour was then sold at such a high rate, that a pound of the fine Tyrian purple cost a thousand Roman Denarii, which is more than thirty pounds sterling. M. Reaumur, and authors in general who have treated of this fish, are agreed, that the purple matter is lodged in a particular vein; but there are several kinds, differing in size and shell, and also in the colour of the tinging liquor. This gentleman observed some on the coast of Poictou, where he also discovered a
different

different kind of purple, produced in oval grains, about a quarter of an inch long, full of a white liquor bordering on yellow, which cover certain stones or sands, about which the Buccina used to assemble. These grains being bruised on white linen, at first only tinge it yellow, but in three or four minutes give it a very beautiful purple, provided the linen be exposed to the open air; for the air of a room will not do, even tho' the windows be open. M. Reaumur adds, that the liquor of the Buccinum, and that of the grains, seem to be nearly of the same nature, except that the latter is more watry.

THESE fish are found in great abundance in the American seas; and Mr. Cole (in the Philosophical Transactions) gives an account of a person who lived by the sea-side in Ireland, and made considerable profit by marking fine linen with a delicate durable crimson-colour, which he did with some liquid substance extracted from a shell-fish. Upon this Mr. Cole made several experiments on the shell-fish taken on that coast, till at last he obtained the colour in the following manner. The shells of this fish, being harder than most other kinds, are to be broken with the smart stroke of a hammer on a plate of iron, or firm piece of timber, with their mouths downwards, so as not to crush the body of the fish within; and after picking off the broken pieces, there appears a white vein lying transversely in a little furrow or cleft, next to the head of the fish, which must be dug out with the stiff point of a horse-hair pencil made short and tapering. The liquor contained in this vein, being laid on linen, appears presently of a light green colour, and if exposed to the sun soon changes into a deep green, and in a few minutes more into a blue, then

then it becomes of a purplish red, and by lying an hour or two longer, supposing the sun still shining, it turns to a beautiful purple, beyond which the sun's heat has no farther effect; but by washing it in scalding water and soap, and again exposing it to the sun and wind, it becomes of a fair bright crimson, which, if well managed, tho' no styptic be used to bind it, will bear washing without losing much of its beauty.—The shells of these fish, Mr. Cole observes, are of various colours, but most of them white; and some are red, when newly taken off the rocks, some yellow, others of both these colours, and others of a blackish brown. The animal seems to be amphibious, living either on land or in the water; but it must be sea-water, for in fresh they soon expire. It is pretty to observe the shift they make to come at air; for being put into a vessel of sea-water, after lying for some time at the bottom, they creep up to the surface, and, by extending a kind of lip, they adhere to the sides of the vessel, with about half that part above the water, sometimes creeping down under it, and then rising again to their former station. The fish, when boiled, is indifferent food; as well tasted, at least, as limpets or periwinkles, though their flesh is somewhat harder.—As to the tinging juice of this fish, our author conjectures it to be the spermatic or prolific matter by which it propagates its species, which seems probable from its consistence, and its virulent fetid flavour; or else it may be a humour, which, by its vital energy, supplies the want of heart, liver, blood, &c. in this, as in other bloodless animals.

WE should now proceed to survey the antiquities of the Asiatic Turkey, but there are a few particulars in the countries we are speaking of, which could

could not well be brought under any of the foregoing heads, and yet seem too remarkable to be omitted; which therefore we shall here throw together as

MISCELLANEOUS ARTICLES.

THE lake Asphaltites, or the Dead-Sea, is a curiosity in natural history, concerning which several groundless opinions have prevailed. This lake is generally supposed to have had its origin from the destruction of Sodom and Gomorrah, the ruins of which cities some travellers pretend to have seen under the water. The formation of it indeed may be tolerably well accounted for, by supposing, that the thunder and lightning, which were undoubtedly concerned in the overthrow of those cities, falling in great abundance upon some pits of bitumen, the veins of that combustible matter immediately took fire, which penetrating into the bowels of the country, and the ground subsiding, an earthquake ensued; and so the waters running to this cavity, and mixing with a vast quantity of bituminous matter, would form a lake of such qualities as it is at present known to possess. It might be thought rashness to call in question an opinion so universally received among Christians, which yet has been contradicted, not to say confuted, by an ingenious writer, whose arguments are chiefly founded on Scripture itself.—This lake seems to have obtained the name of the Dead-Sea, from a notion that its steam or stench killed all birds that attempted to fly over it, and that no fish or other creature could live in it. As to the former, there is sufficient evidence of its being a mistake, birds being frequently seen flying across it without receiving any injury; and as to the latter, there is
good

good reason to doubt the truth of it, some shells, like those of oysters, having been found upon the shore. The water, though very clear, is extremely salt, and withal bitter and nauseous; which might therefore well enough occasion such a tradition.

UPON the shore of this sea, we are told by travellers, there are abundance of small black pebbles, which easily take fire if held to the flame of a candle, and yield a very offensive stinking smoke; but their most remarkable property is this, that they only lose of their weight by burning, their bulk suffering no diminution. They are capable of as fine a polish as black marble, and are said to be found plentifully, and of a considerable size, in the neighbouring mountains*. This is the bitumen for which the Dead-Sea has been always famous, and which Dr. Shaw was informed is raised, at certain times, from the bottom in large hemispheres; which, as soon as they come to the surface, and are acted upon by the external air, burst at once with great smoke and noise, like the *Pulvis fulminans* of the chymists, and disperse themselves round about in a thousand pieces. But this, the doctor adds, happens only near the shore, for in greater depths the eruptions are supposed to discover themselves only in such columns of smoke as are now and then observed to arise from the lake: and perhaps to such eruptions may be attributed that variety of pits and cavities found in the neighbourhood of the lake, which

* This sort of Asphaltum, Dr. Hill observes, is not peculiar to the country about the Dead-Sea, but found also in Spain, France, and Italy. It yields an oil which is an excellent cement, and is supposed to have been the bitumen which, we are told, supplied the place of mortar, in building the walls of the ancient Babylon.

Mr. Maundrell justly compares to those places in England where there have formerly been lime-kilns. The bitumen, continues the doctor, is probably accompanied from the bottom with sulphur, both of them being found promiscuously upon the wash of the shore. The latter is exactly the same with common native sulphur; the former is friable, heavier than water, and yields upon friction, or by being set on fire, a fetid smell, as was observed above. It is as black as jet, and exactly of the same shining appearance.

THERE is a wonderful circumstance mentioned by Josephus, of the Dead-Sea's changing its colour three times a day, and some travellers have pretended the same thing: but such changes, if there be any truth in the report at all, might undoubtedly be accounted for, by considering the nature of its situation, the soil of the adjacent country, or other natural causes, without having recourse to miracle. As for the Apples of Sodom, or Infernal Apples, said to grow on the borders of the lake, and described to be extremely fair and beautiful without, but all soot and ashes within, we may venture to conclude, they never had any existence, except in some poetical or superstitious brain.

MR. Thevenot tells us of a peculiar sort of boats used at Mosul, to carry goods and passengers upon the Tigris, which are made of a great number of Borachios, or goat-skins, blown up like bladders, and tied together with strong ropes. Upon these are laid hurdles made of poles fastened together with withies, over which are placed a sort of benches two feet and a half high, and at a like distance from each other. Over these benches are laid other hurdles, on which they place the goods and passengers, leaving a border round them two
or

or three feet in breadth. These boats (if they deserve that name) are usually twenty-four feet long, ten or twelve wide, and five or six in height. They are rowed by two watermen, whilst a third is employed in wetting the Borachios every quarter of an hour, which otherwise would squat and sink. They have neither mast, sail, nor rudder; and yet, if they wanted wind, as M. Thevenot pleasantly observes, they would soon sink to the bottom.

THE same traveller, speaking of the excessive heats at Mosul in summer, takes occasion to mention a very dangerous burning wind, called Samiel by the Arabs, and which he supposes to be the east wind we read of in the book of Job. It is mixed with streaks of fire as small as a hair, and frequently proves fatal to travellers; for those that breathe it, either instantly die, or have but just time to complain of an inward burning. When they are taken up, they are as black as a coal, and their flesh comes off from the bones; but those who perceive it coming, sometimes escape the danger, by falling flat on the ground. Our author imagines it to proceed from sulphureous exhalations, which are kindled by the motion of the air; for it is chiefly felt on the banks of the river, and not on the water, these vapours being there dispersed by the breezes. Nor is this the only wind, though indeed the most dangerous of any, that infests the inhabitants of this city and climate. The very hot air is pernicious, not only to the lungs and blood, but to the very skin, which is often burnt, blistered, and stripped off by it in a surprising manner. The eyes are so much endangered by it, that they are forced to travel with a kind of soft black crape over them; but as this does not always preserve them, they carry about them

them an efficacious remedy to anoint their eyes whenever they begin to be inflamed.—Our author likewise relates, that in his journey from Suez to Cairo, he was annoyed with one of these hot winds, which lasted for a day together; and that the caravan travelling to Mecca was so infested by one the year before, that in a night's time they lost two thousand men.

THE description M. Tournefort gives of the famous mount Ararat, will perhaps be agreeable to the reader. The ascent to it (according to that traveller, who took the pains to climb it) is not only very difficult and fatiguing, but also dangerous, through the ruggedness of some parts, and the deep sands of others. The horrid precipices one is obliged to pass cannot be beheld without horror, even by the guides themselves, to say nothing of the danger of being devoured by beasts of prey. Neither is there any hermitage, monastery, or other place of refreshment by the way, as some travellers have talked; for our author assures us, he neither met with any, nor, upon enquiring of his guides, could he learn there were any such, except two or three at the bottom of the mountain. It rises to a prodigious height, and may be seen (according to Tavernier) at the distance of five days journey. The Armenians pay a great veneration to it, and pretend to shew some remains of the ark, still preserved from corruption. The upper part of this vast mountain, says M. Tournefort, is continually covered with snow, which, in all likelihood, has lain there ever since the flood; and is, for one half of the year at least, quite hid with clouds, which obscure it from our sight.

ANTI-

THE subject we are entering upon is a very copious one, and would itself afford matter for several volumes; which therefore we shall endeavour to handle with brevity, and yet as fully as the nature of our design requires. No part of the world indeed abounds more with the remains of antiquity than the Asiatic dominions of the Turks, and especially Anatolia, or Asia Minor, which has been famous, both in sacred and profane history, for its great and opulent cities, most whereof are now in ruins, or dwindled to inconsiderable villages.

It is a melancholy thing to see Ephesus, formerly one of the most flourishing cities of Asia, now reduced to a miserable village, remarkable for nothing but the ruins that are spread round it, which sufficiently testify its ancient magnificence. As we go to the port, which at present is only a dangerous road for shipping, we see abundance of old marbles on the banks of the river, where probably stood that part of Ephesus built by Lyfimachus, and the arsenals mentioned by Strabo. The castle or citadel, now possessed by the Turks, has several curious fragments of antique marble, carelessly intermixed in the walls among other less valuable materials. But at some distance from hence we see the remains of another citadel, of greater antiquity, whose works were faced with the finest marble. A gate of this structure is still standing, called the Gate of the Persecution, but for what reason, cannot well be imagined; unless some might suppose, the three bas-reliefs it is adorned with related to the persecution of the primitive Christians under the Roman emperors. These bas-reliefs, of which M. Tournefort has given

given us a draught, are of admirable workmanship, as plainly appears, notwithstanding they are much injured and defaced. That on the left has been the finest, but is most abused; it is about five feet in length, and half that height, representing a bacchanal of children rolling among vine-branches. The middle one is a foot higher, and contains fourteen or fifteen figures of men and women, some naked, and others in Roman habits. The other on the right contains seven or eight figures; but what the whole sculpture was intended to represent, we do not find that antiquaries can determine, though there is most reason to think it was designed for some Roman triumph.—Eastward from the Gate of Persecution, we come to a ruined aqueduct, built by the Greek emperors, to convey water to the castle as well as the city, the arches whereof are supported by square pillars, consisting of fine pieces of marble, with several inscriptions on them, few of which are legible.—On the west side of the village lie vast heaps of ruins, one of which, from its figure and length, must have been a Circus or Stadium; and seems to have had a sort of theatre at the end of it, separated from the two parallel walls; and at a little distance are the remains of an amphitheatre*. South-west of the Circus is a large arch or gate, with part of a wall standing on each side of it, supposed to be the front of a Christian church, built out of the ruins of some ancient edifice, the whole being of excellent marble, on which are to be seen some pieces of inscriptions.—

* Here probably (as Sir George Wheeler observes) the rabble of the city assembled, at the instigation of Demetrius the silver-smith, who thought his craft in danger from St. Paul's preaching against the idolatry of the Ephesians, as may be seen in Acts xix. from ver. 24. to the end of the chap.

As to the celebrated temple of Diana, who was worshipped by the Ephesians, we are informed by history, that it was four hundred and twenty-five feet in length, and two hundred and twenty in breadth, erected at the expence of the most powerful cities of Asia Minor. It was supported by a hundred and twenty-seven columns, each sixty feet high, and many of them covered with curious sculptures, done by the most excellent artists of those times. This superb structure was reckoned one of the wonders of the world, and some say it was two hundred years in building; but it was much sooner destroyed by the villainous ambition of Herostratus, who, to immortalize his name, set fire to it on the very night that Alexander the Great was born. It was afterwards rebuilt with the utmost magnificence, but little is to be judged of it from its present ruins, which are vast heaps of brick covered with marble, all pierced with holes for the cramps of those plates of brass with which it is thought to have been adorned. It appears indeed to have been built upon a multitude of arches or vaults, which some have taken for a labyrinth; but they are nothing else but drains to carry off the water that fell from the mountains, the marshy ground requiring a foundation of that nature for so vast an edifice.

SARDIS, another of the seven churches mentioned in the Apocalypse, and once the royal seat of the rich king Cræsus, is now reduced, says Sir George Wheler, to a nest of worse than beggars, the few Greek Christians in the place being obliged to get a livelihood by digging and planting the gardens of the Turks, having neither church nor priest amongst them. Nor are the Turks themselves there very considerable, either for number or riches, being only herdsmen to the cattle feed-

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ing on the neighbouring plains, and dwelling in pitiful huts of earth, having one mosque, perverted to that use from a Christian church: yet there are still to be seen some noble remains, from whence one may form an idea of its ancient splendour and magnificence. Some of the most considerable are the walls of an old castle standing on a hill, to the eastward of which are the ruins of a church, and of another vast edifice; and on the north and south sides are the fragments of palaces and other proud structures, now demolished, and humbled to the ground*.

A PERSON who delights in antiquities will find great entertainment at Angora, formerly Ancyra, which is still one of the best cities in Anatolia, and every where shews marks of its ancient magnificence. There is nothing to be seen in the streets, says M. Tournefort, but pillars and old marbles, amongst which there is a species of reddish porphyry, and of red and white jasper. Most of the pillars are smooth and cylindrical: some are channelled spirally; but the most singular are

* Here it may not be amiss to observe, with a modern author, that of all the seven churches of Asia, none but that of Smyrna retains its reputation, for they reckon in that city at least ten thousand Greeks, besides several hundred Armenians, and other Christians. The other cities, that St. John was commanded to write to, are now either entirely ruined, or make a despicable appearance. That of Sardis, which made such a figure in the wars between the Persians and Grecians; Pergamus, the capital of a fine kingdom; and Ephesus, which gloried in being the metropolis of Asia Minor; these three famous cities are now obscure inconsiderable villages, built with clay and fragments of fine marble, the remains of their pristine grandeur. Philadelphia indeed, next to Smyrna, is in the best condition, having, according to Dr. Smith, above two hundred houses inhabited by Christians, and four churches; whereas the places of Thyatira and Laodicea are scarce known, unless by some inscriptions found among their ruins.

oval,

oval, adorned with a plat-band before and behind, which also runs along the pedestal and the capital. Our author has given us a draught of one of these columns, as he thought them beautiful, and that no architect had spoken of such an order. As for the modern buildings, they are mostly of clay or turf, now and then intermixed with some fine pieces of marble. The walls of the city are low, and consist of columns, architraves, capitals, and other ancient fragments promiscuously mingled with the rest of the stone-work. On these old pieces of marble are to be seen a great number of inscriptions, most in Greek, but some in other languages; several of which M. Tournefort has copied, and many more are turned inwards, and hid in the wall, through the careless ignorance of the builders.—The castle of Angora is surrounded with a triple inclosure, and the walls are of large pieces of white marble, mixed with another stone not unlike porphyry. Within the first inclosure is a little Armenian church, said to have been built twelve hundred years ago, which receives all the dim light it has through a square piece of alabaster, of that transparent kind we have heretofore described. This part of the castle is full of pedestals and inscriptions, and indeed every part of Angora so abounds with them, that an antiquary might employ a whole year in transcribing them. The church-yard belonging to the Christians has such a store of Greek and Latin inscription, that it can never be exhausted; but the greatest part of them are epitaphs of persons about whom we are not concerned*. The learned French traveller

* M. Tournefort, who has copied many of the ancient inscriptions he saw at Angora, has also transcribed two modern epitaphs he observed in the church-yard of the Christians, which,

yeller above-mentioned has also given us a draught of the remains of a noble structure at Angora, which he calls the Monument of Augustus, as having probably been dedicated to that emperor by the inhabitants, in acknowledgment of his repairing and beautifying that city. It appears to have been all of white marble, and some of the walls are still above thirty feet high. The front is entirely destroyed, only a stately door remains, which is four and twenty feet high, and full three yards wide; on the sides whereof is a defaced inscription in three columns, relating to the life of Augustus, which is to be found in Gronovius, Clusius, and other authors. The injury this inscription has received, is not so much occasioned by length of time, as by the avarice of the peasants, who have made great hollows in the stones, to get out the pieces of copper by which they were cramped together.

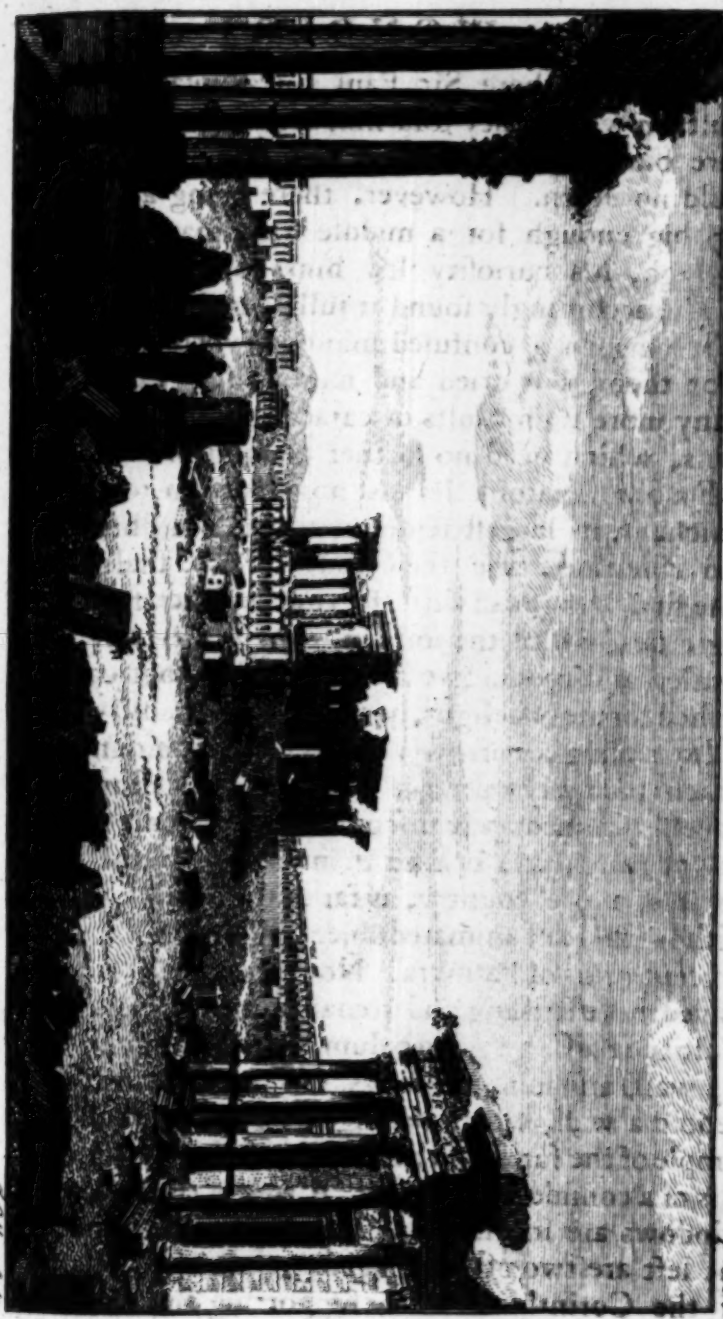
IN the neighbourhood of Cæsarea, in Cappadocia, there are many ancient structures, some in form of a tower, and terminating with a cupola; others like a pyramid or sugar-loaf; but all of them of fine square stones, supposed to have been Persian tombs, as the inside of them is divided into two, three, or more vaults, with several Persian inscriptions. At the foot of a mountain, on which the old city stood, its ruins are still to

which, as they relate to natives of Great Britain, we think proper to mention. They are in Latin, and to the following effect: "Here lies interred John Roos, a Scotchman, who died at Angora the 22d day of June, in the year of our Lord 1668, and the thirty-fifth of his age. What is my lot to-day, may be thine to-morrow."—The other is equally plain, and to this purpose: "Here lies Samuel Farrington, an Englishman, son of Acidwall Farrington, a merchant of London, who slept in Christ in the twenty-third year of his age, and of our redemption, 1660."

be seen; and here Sir Paul Lucas was shewn a vault, in which they told him forty virgin-martyrs were buried, but when, or who they were, he could not learn. However, there being an opening big enough for a middle-sized man to creep through, his curiosity led him to examine it; and he accordingly found it full of bodies, broken, and lying in a confused manner, with the flesh upon them, but dried and hardened. There are many more such vaults or catacombs among these ruins, which need no farther description.

FROM Anatolia let us now pass on to Syria, which, in its largest sense, comprehends Phœnicia and Palestine; and these countries we shall likewise find overspread with the ruins of once flourishing cities, whilst the soil, in many places rich and fertile, and productive of every thing that can be wished for use or delight, lies waste and uncultivated.

IN passing a narrow valley between mountains which suddenly open on each side, the astonished traveller immediately discovers an immense quantity of ruins, and behind them, towards the Euphrates, a level country, as far as the eye can reach, without the least animated object. These are the magnificent ruins of Palmyra. No prospect can be conceived more striking and romantic than such a vast multitude of Corinthian columns, with few intervening walls and solid buildings. On the left hand, you behold a wall, which belonged to the court of the temple of the sun; and though part is broken down, it is of a considerable length. A row of twelve noble windows are still standing together, and farther to the left are two others: between each is a pilaster of the Corinthian order supporting the entablature; through the space that is broken down, the view is terminated by distant rows of columns, and



p. 366

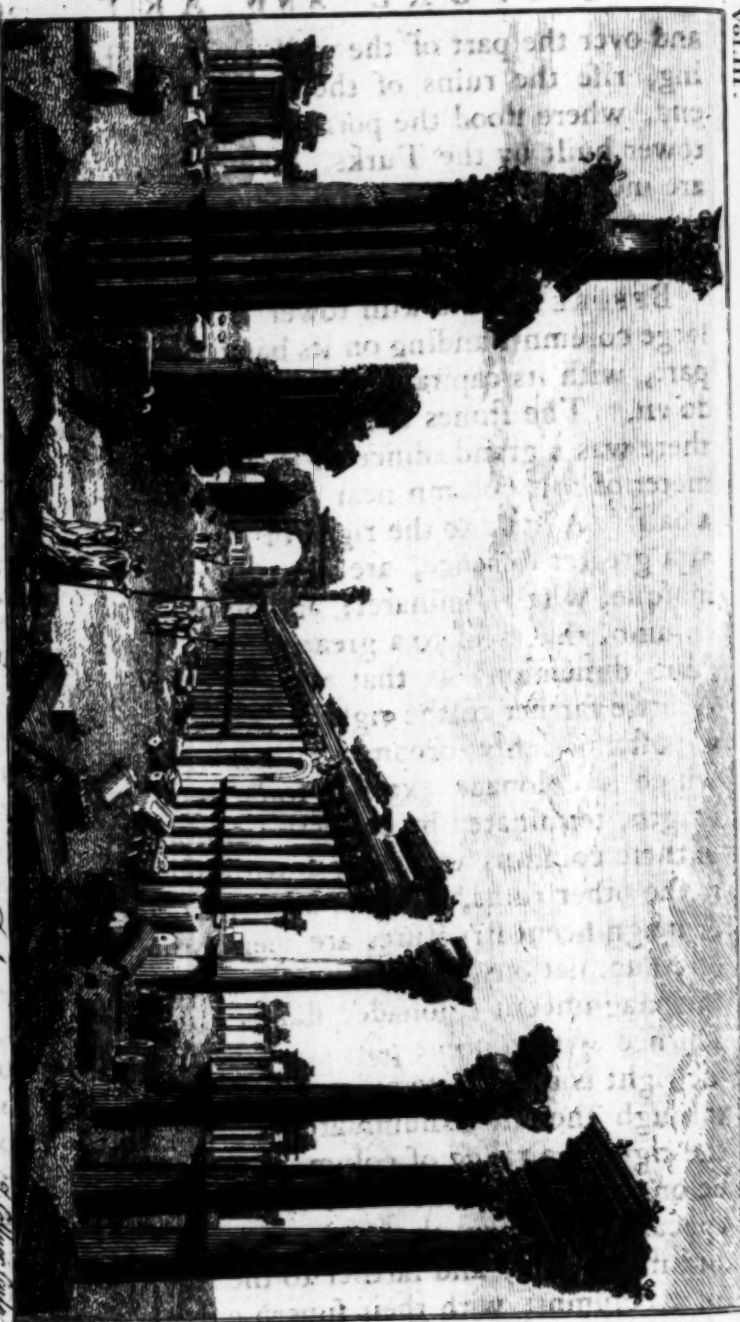
A General View of Columbia

J. G. Cooper del.

view is terminated by distant rows of columns, and
thence, through the space that is between down the







The Remains of the Great Temple in Palmyra.

J. Collyer sculp.

...remains of some magnificent edifice. A little to the right of these, though at a greater distance, ...

and over the part of the wall which is still standing, rise the ruins of the temple itself. At the end, where stood the portico, is a square ruinous tower built by the Turks. Before these buildings are inclosures of corn and olive-trees planted by the Arabs, and separated by mud-walls, while on all sides magnificent ruins lie around them.

BEFORE the Turkish tower is a piece of a very large column standing on its base; but the greatest part, with its capital and entablature, have fallen down. The stones that are around it shew that there was a grand edifice in this place. The diameter of this column near the base is five feet and a half. A little to the right of the tower, though at a greater distance, are the ruins of a Turkish mosque, with its minaret; and before it is a grand column, that rises to a great height, and is of the same dimensions as that which is broken down. A little farther to the right is a noble arch, with a postern richly ornamented on each side, from which a colonade extends four thousand feet in length, terminated by a superb mausoleum. Many of these columns are fallen down, and open a view to the other ruins, while in other parts the remains of magnificent structures are seen through the intercolumniations. At some distance nearer, before this magnificent colonade, stands a small temple, adorned with a noble portico; and still farther to the right is another temple, with its peristyle seen through the intercolumniation. Still farther to the right is a range of columns, that seem to have belonged to a portico. At some distance nearer appear ruins, like those of a Christian church; and still nearer, and farther to the right, are four lofty columns, with their superb entablature, the only remains of some magnificent edifice. A little to the right of these, though at a greater distance,

are a number of columns, still supporting a considerable part of their entablature, and so disposed, that they resemble the peristyle of a small temple that has been wholly destroyed; nearer still, and more to the right, is an elegant mausoleum. Besides these, a vast number of columns are scattered over the plain, some with, and others without their entablatures; while the ground is on all sides covered with broken columns, capitals, rich entablatures, and stones of prodigious magnitude. Towards the right the distant prospect is terminated by a range of hills and mountains; on one of which is a castle, and on another are the ruins of a Turkish fortification.

ALL these magnificent ruins appear at one view in the distant prospect; but on a nearer approach, the admiration is still kept up by the prodigious size of the columns, and the perfection of the workmanship bestowed on the ornamental parts, particularly the ornaments of the gate, and the beauty of the entablatures and capitals: but nothing can possibly form a more amazing contrast to all this magnificence, than the wretched huts of the Arabs, thirty of which are in the court of the great temple. These ruins were once surrounded with walls, flanked with square towers; but in many parts they are entirely levelled. They seem to have been three miles in compass: but the Arabs shew a tract of land raised above the level of the desert, about ten miles in circumference, which they say was the extent of the ancient city, and that ruins are discovered there by digging. A circuit of three miles must indeed be thought very little for Palmyra in its prosperity, when it is considered, that the greatest part of the space was filled by public edifices, which, from their astonishing magnificence, and the many superb sepulchres,

sepulchres, incontestibly prove its ancient grandeur; and it is probable, that when Justinian fortified it after its being destroyed, he contracted its bounds.

THE superb remains of this city are so striking, that it is impossible to avoid feeling our curiosity excited with respect to its condition in ancient times. It is natural to enquire how a spot like this, divided from the rest of the world by an inhospitable desert, came to be chosen for its situation; who was its founder, and from what quarter it drew the riches necessary to its support? But it is remarkable, that history makes scarce any mention of Palmyra and Balbec; and we have little knowledge of them, but what is supplied by inscriptions. Is not even, says our author, this silence of history instructive? Does it not inform us, that there are periods in history that are entirely concealed from us? By the natural and ordinary course, the memory of cities is preserved longer than their ruins; but here are two examples of considerable cities, that have subsisted longer than any other known to us; and yet it is rather what we see than what we read, that excites our curiosity concerning them; and the remains of Balbec and Palmyra still subsist, to relate, if we may use the expression, their own history. Can the loss of books be the cause, or did the ancients set less value on these edifices than we do at present? If this last be the case, their silence, with respect to Balbec, will justify what they advance about Babylon; and their not mentioning Palmyra, be a kind of proof of the amazing magnificence of Greece and Egypt, on which they have bestowed such encomiums.

JOHN of Antioch observes, that Palmyra was built by Solomon, on the very spot where David

flew Goliath, in honour of that memorable action; but what the Arabian historians mention on this subject, appears so extremely fabulous and extravagant, as to be unworthy of notice. The Old Testament informs us*, that Solomon erected a city in the wilderness, and called it Tedmor; and we are told by Josephus, that the Greeks and Romans afterwards gave it the name of Palmyra, but that its first name was retained by the Syrians; and this is confirmed by St. Jerom, who says, that Tedmor and Palmyra are the Syrian and Greek names of the same place: even at present the Arabs of the country still call it Tedmor. They pretend that these ruins were the work of Solomon, and, among other things, shew the seraglio of that king, his haram, and the tomb of one of his favourite concubines. “Solomon, the son of David, say they, performed these wonders by the assistance of spirits.”

BUT the structures erected by Solomon were doubtless entirely demolished by Nebuchadnezzar, who, we are assured by John of Antioch, destroyed that city before he besieged Jerusalem. It cannot be reasonably supposed, that edifices, in the elegant stile of those of Palmyra, were prior to the establishment of the Greeks in Syria. Hence it is not surprizing, that Xenophon should take no notice of it in his celebrated Retreat, though he is very exact in describing the desert: nor shall we wonder at its not being mentioned in the history of Alexander the Great. No mention is made of it before the time of Mark Antony, who would have plundered it, had not the inhabitants secured themselves, by transporting their most valuable effects beyond the Euphrates, and defending the passage of that river by their archers. At that

* 1 Kings, ix. and 2 Chron, viii.

time the inhabitants of Palmyra were merchants, and sold to the Romans the merchandizes of India and Arabia. We may therefore conclude, that they were a rich and free people; but how long they had enjoyed these advantages, is uncertain. Their riches and trade were probably of some standing; for it appears from inscriptions, that in less than forty years after, their expences and their luxuries were excessive. Afterwards, when the affairs of the Romans in the East were in a low situation, Odenathus of Palmyra took such advantage of the situation of his country, between the two great rival empires of Rome and Persia, that he rendered himself master of the balance of power, and declared for the one or the other, according as the face of affairs changed, and his interest required. He entered into an alliance with the emperor Gallienus, collected the poor remains of the Roman army, and by his valour, activity, and remarkable patience in enduring fatigue, vanquished Sapor king of Persia in several engagements, advancing with his victorious troops as far as Ctesiphon, the capital of his empire. On his return from this expedition, with the greatest applause, and with considerable treasures, Gallienus declared him Augustus, and his associate in the government of the empire. Odenathus afterwards defeated Balista, who aspired to the empire, and at length drove out the Goths, who had committed the greatest ravages. This was his last exploit, and it is thought, that in this expedition he was treacherously murdered by his kinsman Mæonius; his son Herodes soon after suffered the same fate. Mæonius was then saluted emperor, but in a short time after was cut to pieces by his own soldiers.

N 4 ODENATHUS

ODENATHUS left behind him his wife, queen Zenobia, and two sons he had by her, who boasted her being descended from Ptolomy, and reckoned Cleopatra among her ancestors. She had many great and amiable qualities. After the death of Odenathus, she assumed the reins of government, in the name of her children; and renouncing the alliance with Rome, attacked, and entirely defeated Heracianus, the Roman general. This victory left her in the possession of Mesopotamia and Syria. She then, by means of Zabdas, one of her generals, conquered Egypt, and afterwards added the greatest part of Asia Minor to her dominions. How strange and unaccountable are the vicissitudes of fortune! A small territory, in the midst of a desert, extends its conquests over many rich countries! The powerful kingdoms of the Ptolemies and the Seleucidæ form a part of the dominions of a single city, whose name is sought for in vain in their history; and Zænobia, encompassed by the barren sands of Palmyra, includes Egypt within her dominions to the south, and extends them to the north, as far as the Black-Sea and the Bosphorus. However, this new-raised empire was of very short continuance; for a few years after, the emperor Aurelian recovered the eastern provinces, and forced Zenobia to shelter herself within the walls of Palmyra. He then invested that city, the queen rejected all negotiations with contempt; but, after a brave defence, resolving to solicit in person the assistance of the Persians, she set out on a dromedary; but just as she was about to cross the Euphrates, had the misfortune to be taken prisoner by a party of horse sent after her by Aurelian. The inhabitants of Palmyra having thus lost their queen, surrendered to the emperor's mercy, on which he spared their
lives,

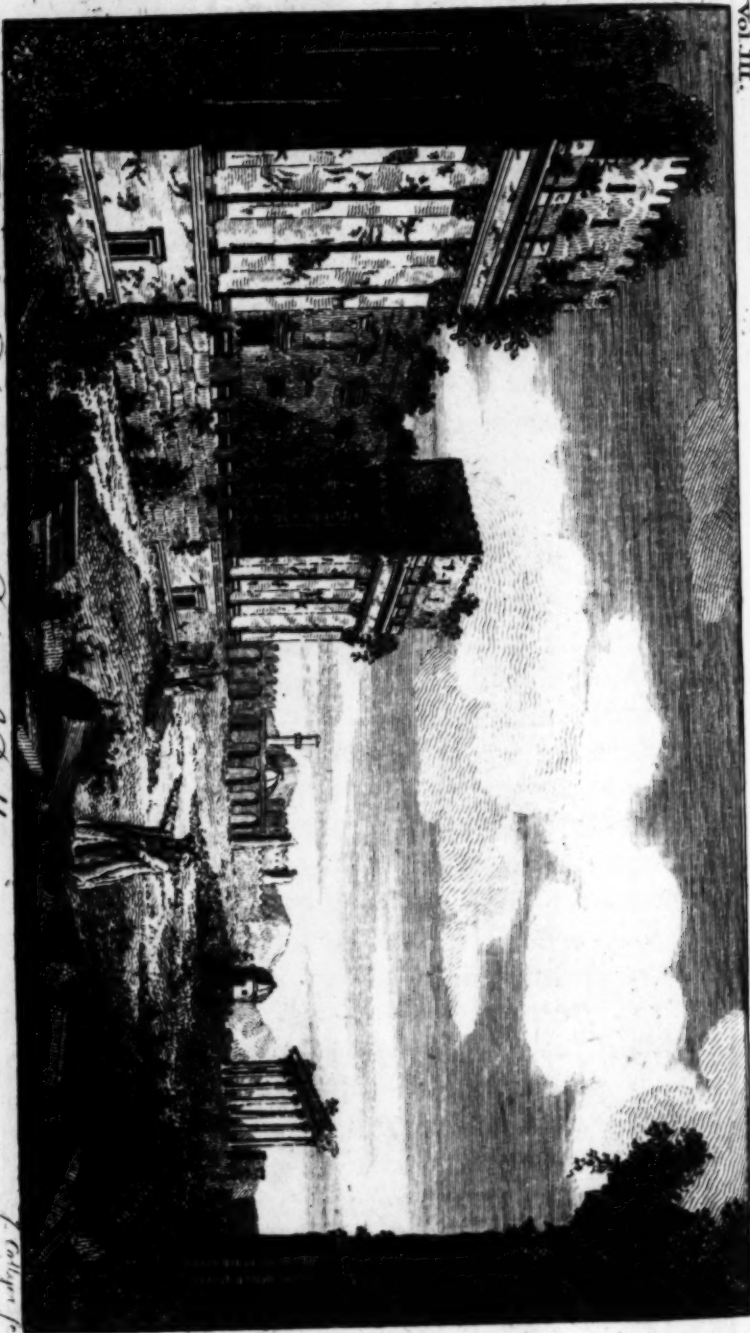
lives, and marched to Emiffa with Zenobia, carrying with him a great part of the riches of the city, and leaving there a garrison of 600 archers. At Emiffa the emperor enquired into Zenobia's motives for refifting him with fuch refolution, and upon this occafion he ftained her glory, by purchafing a difhonourable life at the expence of her friends, whom fhe meanly betrayed: he mentioned thofe who had been her advisers; on which Aurelian had the cruelty and injuftice to facrifice them to his refentment, while fhe was referved to adorn his triumph. Among thofe who fuffered was Longinus, who wrote upon the fublime, and had dictated a haughty letter his miftrefs had wrote to the emperor; but the intrepid courage with which he fubmitted to his fate, fhews, that his bravery was equal to his learning.

THE misfortunes of Palmyra were not yet ended: when a free people are from the height of glory fuddenly reduced to flavery, they generally take fome desperate meafures for their deliverance. The Palmyrenes cut off the Roman garrison, and Aurelian hearing this news as he was returning to Rome, fpeedily turned back, and taking the city, destroyed it, caufing almoft all the inhabitants to be maffacred, without regard to age or fex. We are informed of the particulars of this cruelty by the emperor himfelf, who in the letter he wrote to Baffus, to order him to repair the temple of the fun, which had been much damaged by the fouldiers, appropriates to that ufe 300 pounds weight of gold found in Zenobia's coffers, with 1800 pounds weight of filver, which belonged to the people, befides the crown jewels. Palmyra having thus loft its liberty, continued fubject to a Roman governor; and we find that Juftinian repaired and fupplied it with water, after its having

been for some time almost deserted. This is the last time in which Palmyra is mentioned in the Roman history. The civil revolutions of this city afford a proof, that christianity could not be long established there, whence it is the less surprizing, that ecclesiastical history furnishes nothing worth the pains of repeating; and there is no means of knowing what has happened to it since the destruction of the eastern empire by the Mahometans.

NEXT to the ruins of Palmyra, there are none which more attract the attention of travellers than those to be seen at Balbec, a town about thirty miles north of Damascus. In describing these ruins, we shall take for our guide the learned Mr. Wood, who observes, that the valley of Bocat, in which Balbec is situated, is of considerable extent, and is one of the richest and most beautiful spots in Syria, it being more fertile than the celebrated vale of Damascus, and better watered than the rich plains of Rama and Esdraelon. The city is agreeably seated on a rising ground, near the north-east extremity of this plain; and there is not the least doubt of its being the Heliopolis of Coelo-Syra, sometimes called the Heliopolis of Phœnicia. It at present contains about five thousand inhabitants, a few of which are Greek and Maronite Christians, and some Jews; but the people are poor, and without trade and manufactures. Our author, after having visited the ancient cities of Greece, Egypt, and Asia, observes, that he cannot help thinking the ruins of Balbec the remains of the boldest plan that appears to have been ever attempted in architecture.

THE traveller, on viewing this city from the south, sees the present town encompassed with its walls; and at the east end, the most considerable ruins of the ancient Heliopolis, particularly the
remains



Ruins of the Great Temple *Ruins of Balbec.*

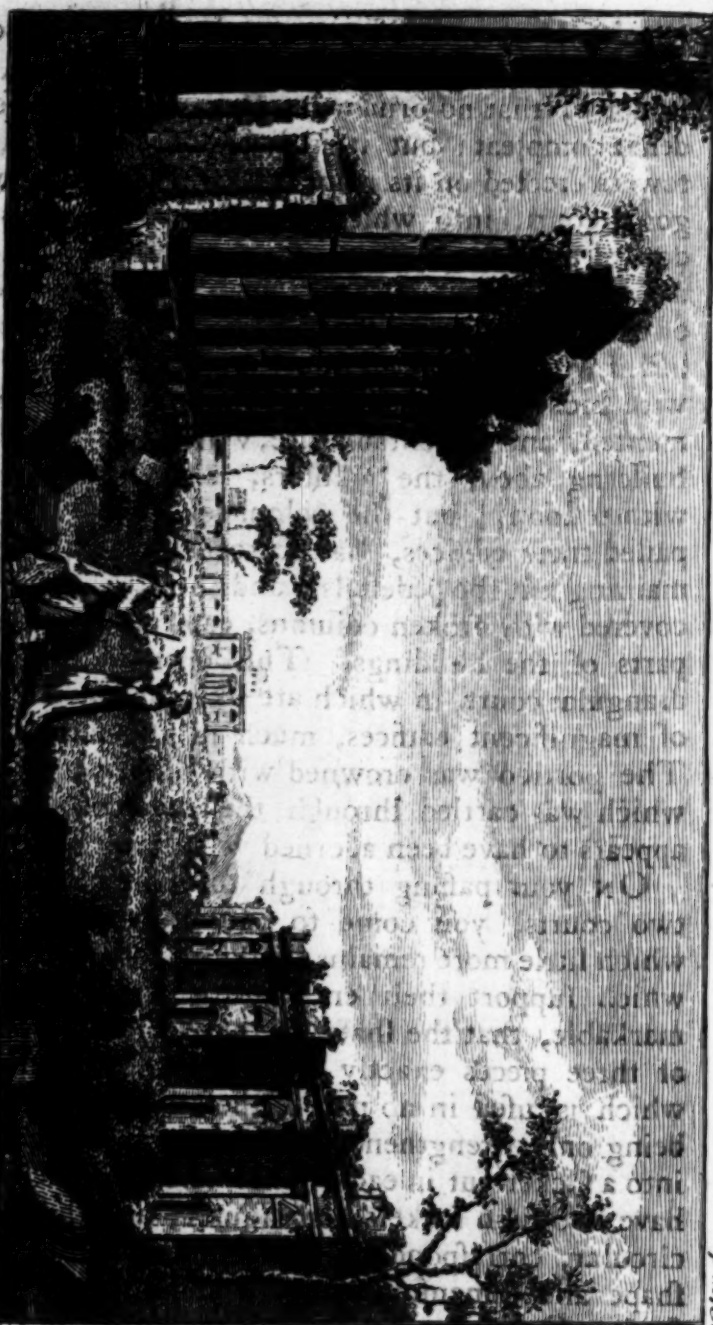
J. Goussier del.



Remains of the Great Temple

Remains of a Palace

North View of the Quadrangle



p. 275.

that were circular, it was found, that the most
which

No

remains of its magnificent temple. The portico, which formed the grand front of that structure, is so noble, that no ornaments seem wanting to render it compleat: but it is disfigured by Turkish towers erected on its ruins. Behind it an hexagonal court, into which the portico leads, is adorned with the most magnificent buildings, now in ruins; but enough still remains to give an idea of their ancient grandeur. The walls are embellished with pilasters of the Corinthian order, and with niches for statues; the doors are finely ornamented, and the entablature, which surrounds the building above the pilasters, is richly adorned with festoons; but the colonade, which encompassed these edifices, has scarcely any thing remaining but the pedestals; and the whole court is covered with broken columns, capitals, and other parts of the buildings. This opens into a quadrangular court, in which are likewise the remains of magnificent edifices, much in the same taste. The portico was crowned with an Attic course, which was carried through the two courts, and appears to have been adorned with statues.

ON your passing through the portico and the two courts, you come to the great temple, of which little more remains than nine lofty columns, which support their entablature. It is very remarkable, that the shafts of these columns consist of three pieces exactly joined, without cement, which is used in no part of these buildings, they being only strengthened with iron pins received into a socket cut in each stone. Most of the bases have two such sockets, one square, and the other circular, corresponding to two others of the same shape and dimensions, in the under part of the shaft. On measuring some of the largest of those that were circular, it was found, that the iron pin

which they received must have been a foot long, and above a foot in diameter; and by the sockets, in all the fallen fragments of this temple, it appears, that each stone was fastened in the same manner. How much this contributed to the strength of the building is seen in another temple, which is more entire, where a column has fallen against the wall, with such violence, as to beat in the stone it fell against, and break part of the shaft; yet the joinings in the same shaft have not been in the least opened by the shock. The most entire temple is placed irregularly with respect to the former, and is erected upon a much lower horizontal plain. It has still a perystyle of eight columns in front, and fifteen in flank, which continue to support their entablature, though the Turks have made several attempts to destroy them, in order to obtain the iron used in strengthening this noble structure. The arch of the portico is divided into compartments by the richest carved work, and mouldings cut in the solid stone. These compartments are in an alternate succession of one hexagon and four rhombs, enclosing heads and figures in alto relievo. The rhomboid panels contain heads of gods, heroes, and emperors; the hexagons likewise contain the heads of the same subjects, and sometimes entire figures relating to the ancient mythology, as Ganymede riding on the back of an eagle, Leda, and the Swan, a half length of Diana, &c. On the inside of the temple, a row of fluted Corinthian columns rise to the top of the building, and support a rich entablature. Between each column is a niche, finely ornamented; and above each niche, a tabernacle, or opening answering to it, supported by small columns. The roof is fallen in, and many shrubs grow on the ruins of the entablature.

To the west of these magnificent remains of antiquity, is a noble circular temple, which, on the outside, is of the Corinthian order, and within, both of the Corinthian and Ionic; but the shafts of all the columns are of one piece. The front of this temple is concealed, and greatly disfigured by Turkish houses, and modern additions erected against it; and, on the inside, the lower or Ionic story is converted into a Greek church, and for that purpose is separated from the Corinthian story above.

ACCORDING to Mr. Maundrell, the ancient wall which encompasses these stately remains, is built with stones of such a prodigious size, that those of our famous Stonehenge are not to be compared with them. Three of the largest of these stones, lying end to end in the wall, are one hundred and eighty-three feet in length, one of them being sixty-three feet long, and the other two sixty a-piece. They are twelve feet deep, and their breadth the same; and, what is most astonishing, they are raised up into the wall above twenty feet from the ground. These are the largest that travellers have taken notice of, but the other stones of this wall are of a vast bigness.

THE small part of the city at present inhabited is near the circular temple; and within this compass are several mosques, with their minarets. The city-walls appear to be the confused patchwork of different ages; and the broken entablatures, pieces of capitals, and reversed Greek inscriptions, which appear in going round them, shew that they were repaired, after the decline of taste, with such materials as lay nearest at hand.

At an inconsiderable distance from the walls of the city is a quarry of free-stone, from which the immense stones employed in the body of the great temple

temple were probably taken, while the ornamental parts of those buildings were supplied by a quarry of coarse white marble, at a greater distance to the west of the city. There are still remaining in the first quarry some vast stones, cut and shaped for use. One of them, thus shaped, but not entirely detached from the quarry at the bottom, is seventy feet long, fourteen broad, and fourteen feet five inches deep; whence it must contain fourteen thousand one hundred and twenty-eight cubic feet; and were it Portland stone, would weigh about two million two hundred and seventy thousand pounds averdupois, or about eleven hundred and thirty-five tons.

ALL the inhabitants of this country confidently maintain, that both Balbec and Palmyra were built by Solomon; and it is probable, says our author, that his character, as a wise and yet voluptuous prince, may have given rise to an opinion, which, with respect to Balbec at least, seems to have scarce any other foundation; for no where could an eastern monarch enjoy a more luxurious retirement than amidst the streams and shades of Balbec. The natives relate many stories of the manner in which he spent his hours of dalliance in this retreat: a subject on which the warm imagination of the Arabs is apt to be too particular. Our author imagines, it may be more reasonably enquired, whether the Phœnicians did not erect these temples in the neighbourhood of their capital; for, according to Macrobius, the city obtained both its name and worship from Heliopolis in Egypt, and that the statue of Heliopolitan Jove was brought from thence to this city. "This
"divinity, says he, was both Jupiter and the
"Sun, which appears by the rites of the worship,
"and by the attributes of the statue, which is of
"gold,

gold, representing a person without a beard, holding in his right hand a whip, like a charioteer, and a thunderbolt, with ears of corn in his left; all which point out the united powers of Jupiter and Apollo."

BUT instead of consulting the Jewish and Phœnician history, adds our ingenious and learned author, for buildings of the Corinthian and Ionic order, it may be thought more proper to search for them, during the time when this country was in the possession of the Greeks: but we do not find them mentioned from the period when it was conquered by Alexander, to that when it was subdued by Pompey. Hence it may reasonably be concluded, that they were works of a later date; and indeed John of Antioch observes, that Antoninus Pius erected a temple to Jupiter at Heliopolis, near Libanus in Phœnicia, that was one of the wonders of the world; and this is the only historian who mentions the building of a temple at Balbec.

If we proceed from Balbec to the sea-coast of Syria and Phœnicia, we shall find several cities that have been famous in history, but have now lost great part, or all of their ancient splendor, of which the ruins spread about them are evident testimonies. Sidon in particular, which may properly enough be termed the metropolis of Phœnicia, as it seems to be the oldest city in that country, though it be still pretty populous, has lost its former magnificence as well as extent; which is manifest from the many beautiful pillars, and other fragments, that lie scattered up and down the gardens, without the walls of the present city. Besides these, many curious antiquities are obscured and buried by the Turkish buildings.

THE celebrated city of Tyre is another melancholy instance of the instability of human grandeur, which is so far fallen from its ancient state of magnificence, that it is nothing but a mere Babel of decayed and broken walls, fragments of pillars, pieces of antique marble, and great heaps of rubbish, scarce one house being left entire.

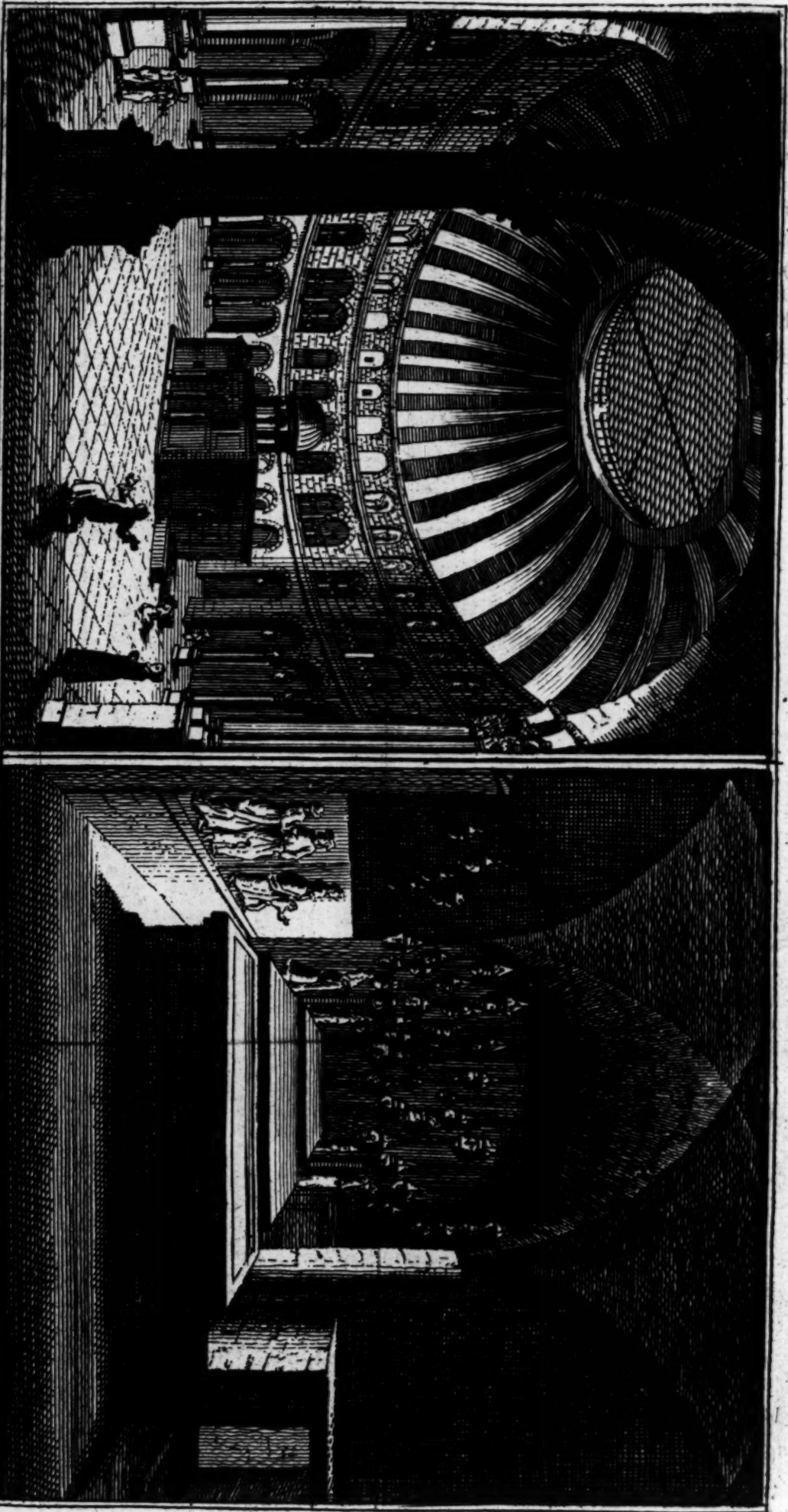
WE now come to take a view of Jerusalem, that once famed metropolis of the Jewish monarchy and worship, whose origin, glory, and dreadful catastrophe, are too well known to be here related. It is situated on a rocky mountain, with steep ascents on all sides except on the north, and surrounded with a deep valley, which is again encompassed with hills at a moderate distance. The private buildings are very mean, the streets narrow, and several of them full of ruins; and, though its circumference is scarce three miles, it is but thinly inhabited. It is likewise to be observed, that the situation of the present Jerusalem is different from that of the ancient city; for mount Calvary, which was formerly appropriated to the execution of malefactors, was shut out of the walls, as a polluted place; whereas, since our Saviour's suffering upon it, the reverence paid to it by the Christians on that account, has occasioned such an alteration, that it now stands almost in the centre of the city; and, on the contrary, mount Sion, the most eminent part of the old Jerusalem, is now left without the walls. In a word, the only thing that renders Jerusalem considerable at present, is the great resort of pilgrims thither; and the accommodating them with necessaries seems to be the principal business of the inhabitants.

It is against Easter that the Christian pilgrims repair to Jerusalem in the greatest numbers, to attend

A The flat Cupola of the Church of the Holy Sepulchre covered only at Top with a wide Iron Grate thro' which it receives its Light & exactly under it stands our Saviour's Sepulchre;
B The Round Cupola of the Church

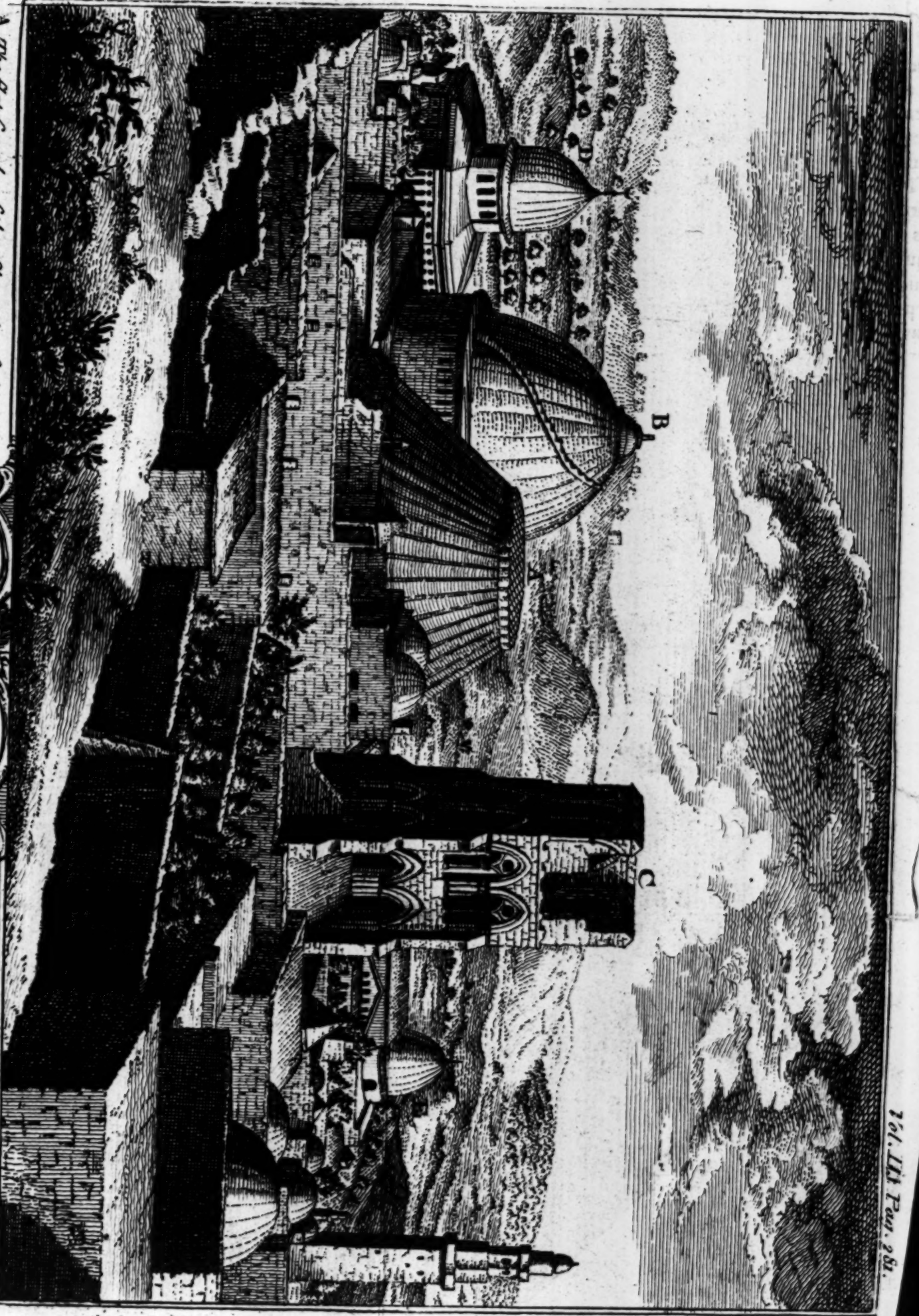
THE CHURCH
OF THE
HOLY SEPULCHRE
&c.

of the Holy Sepulchre. C The Steeple of the Holy Sepulchre.
D A Turkish Mosque called Solomon's Temple, built on the same Ground, 'tis where Solomon's Temple stood
E The Church of the Presentation,



The Inside of the flat Cupola and the Appearance of the outside of the Holy Sepulchre.

The Inside of Holy Sepulchre and of Grave of our Saviour which is illuminated with 44 silver Lamps large and small as appears from this nice Draught. These Lamps hang and burn night and day, and were presented by the 44 Emperors and Kings of France, Spain, Poland, Portugal &c.



A. The flat Cupola of the Church of the Holy Sepulchre covered only at Top with a wide Iron Grate thro' which

THE CHURCH OF THE

of the Holy Sepulchre. C. The Steeple of the Holy Sepulchre.

attend the religious solemnity of that season in the church of the Holy Sepulchre. This church, with many others throughout Palestine, was founded by the empress Helena, mother of Constantine the Great, whose piety led her to take a view of a country which had been the theatre of the redemption of mankind, and particularly the city of Jerusalem, which, to the utmost of her power, she enlarged and adorned with magnificent structures. The length of this church, which is built upon mount Calvary, is about an hundred paces, and its width sixty, having at the west end of it a square tower or steeple, which appears somewhat ruinous, but the edifice in general is kept in good repair, and looks sumptuous and majestic. The nave or body of the church is round, and has two circular galleries, one above another, supported by large square pillars, formerly faced with white marble. Here we see several mosaic pictures in concave niches, representing prophets, apostles, &c. and amongst the rest are the effigies of the emperor Constantine, and his mother Helena, the foundress of the building. This part of the church is covered with a dome, sustained by rafters of cedar, having an opening at top, through which it receives a sufficient light. Exactly underneath this aperture is the holy sepulchre, which at first was a cave under-ground, but the rock about it having been cut away, it is now considerably above the pavement of the church, and is hewn into the form of a chapel. We are forced to creep into this chapel or grotto, if we may call it so; the entrance being not above a yard high; but within it is about eight feet square, and as much in height, all cut out of the solid rock, and lined with white marble. The tomb wherein our Lord was laid, is raised in form of an altar, almost three
feet

feet from the floor, extending the whole length and half the breadth of this little chapel, so that there is not room for above three persons to kneel without much inconvenience. A great number of lamps, which are kept here continually burning, make the place excessively hot, the smoke whereof evades by vent-holes cut through the roof, over which there is a small canopy covered with lead, supported by six double Corinthian columns. The outside of the chapel is likewise adorned with ten beautiful pillars of white marble, adjoining to the wall, and sustaining a cornice.

THE choir of this church is not unlike that of our cathedrals. It is separated from the nave by a wall, which has a door opposite to that of the holy sepulchre; and to the east it terminates in a semicircle, where the high altar stands, which is richly gilt, and hung round with the pictures of several saints, painted full-faced after the manner of the Greeks, to whom the choir belongs; but the privilege of saying mass in the chapel of the holy sepulchre is confined to the Latins. A dome of free-stone covers this choir, which is close at top, rough-cast on the outside, and supported by large pillars.

SEVERAL parts of this church are distinguished by the name of Holy Places, and looked upon with more than ordinary veneration, as having some particular actions done in them relating to the sufferings, death, burial, and resurrection of our blessed Saviour; and each of these sacred places has its respective altar.—One of these is called the Chapel of Derision, wherein there is an altar sustained by two pillars, and underneath it a piece of greyish marble, on which they say the soldiers placed our Saviour when they crowned him with thorns, and mocked him, saying, Hail King

King of the Jews.—The chapel of the Prison is another, being a little dark place, wherein they say our Lord was confined whilst things were preparing for his crucifixion, and where the Greeks keep a lamp continually burning.—Another of the Holy Places is a particular part of mount Calvary, about twelve yards square, which is left much higher than the floor of the church, having steps to go up to it; and here they pretend to shew the very place where our Saviour was nailed to the cross. This chapel is covered all over with mosaic work; and in the middle of the pavement there are some marble stones of several colours, designed to point out the spot where our Lord's blood fell when his hands and feet were pierced. Here are two altars, before which hang sixteen lamps; and a candlestick with twelve branches.—In an adjoining chapel the rock rises above the floor in form of an altar, which is covered with white marble, and in the middle of it is a round hole, about seven inches in diameter, and two feet deep, which is affirmed to be the very same wherein the foot of the cross was fixed, on which our Saviour suffered; and just by we see a cleft in the rock, which is evidently genuine and natural, and said to be made by the earthquake which happened at that time. This hole is now plated with silver, and on each side of it the places where the two thieves were crucified are represented by two crosses fixed on little marble pedestals.—The Stone of Unction is about seven feet long, and two broad, adorned all round with a chequered border of white and red marble, and inclosed within iron-rails, to prevent its being trod upon. It is so called, as being supposed to be the very spot where our Lord's body was anointed, and prepared with myrrh and aloes for the burial.—To these

these might be added several other Holy Places, as that where the soldiers divided our Saviour's garments; where he appeared to Mary Magdalen after his resurrection, &c. all which things are supposed to have been transacted within the narrow limits of this sacred structure.

THERE are many more remarkable things in and about the city of Jerusalem, some of which it seems proper to mention, as they are generally shewn to travellers. Upon mount Moriah the Turks have built a mosque, which is frequently called the Temple of Solomon, and is supposed to stand upon the same ground that was formerly taken up by the Holy of Holies. It is an octagonal building, covered with a cupola, and tho' it is neither a large nor elegant structure, it makes a grand appearance from the sole advantage of its situation. The Turks have inclosed the area where Solomon's temple formerly stood, and will not suffer a Christian, on pain of death, to go within its borders; but it may be distinctly viewed from the top of a house called Pilate's Palace, and one may plainly see, that it must have cost immense labour to level such a spacious area upon so strong and rocky a mountain.

FROM this pretended palace of Pilate, wherein the Turkish sangiack now resides, begins what the Christians call the Dolorous Way, that is, the way that our Lord was led to Calvary, the place of his crucifixion, which is about a mile distant. In this journey we pass under an old arch that crosses the street, in the side of which there is a window, where Pilate is said to have presented Christ to the people, saying, Behold the Man: and a little farther we are shewn the ruins of a church, built on the place where the Blessed Virgin is reported to have fallen into a swoon,

sworn, on seeing our Lord bearing his cross, and used with indignity. We likewise pass by the Gate of Judgment, through which malefactors were anciently led to the place of execution, and which stood in the western wall of Old Jerusalem, but is now considerably within the city.

AMONGST other antiquities, they shew us an ancient building, which is made use of as a prison, and is the very same (they say) from which St. Peter was delivered by an angel. About a furlong from thence stands an old church belonging to the Greeks, said to have been erected by the pious Helena, upon the ground where the house of Zebedee formerly stood, who, they tell us, was a fisherman, and used to bring fish from Joppa to Jerusalem. Where the house of Mark stood, to which St. Peter retired after his miraculous deliverance, the Syrians have a small church, wherein they boast of having a Syriac manuscript of the New Testament about nine hundred years old, and a little stone font made use of by the apostles themselves.

It would be endless, or at least tedious, to enumerate the pretended curiosities with which strangers are amused; and therefore we shall take leave of Jerusalem, after having mentioned a few particulars observable in its neighbourhood. Going out of the city, at the gate of Bethlehem, we see Bathsheba's Pool, as it is called, being supposed to be the same wherein she was washing herself when David spied her from the terrace of his palace. Passing by this pool, we enter the valley of Hinnom, on the west side whereof is the Potter's Field, or Aceldama, that is, the Field of Blood, being purchased by the thirty pieces of silver, the price of the innocent blood of our Saviour. At present it is called the Holy Field, on account

account of the veneration it has among Christians. The piece of ground is only about thirty yards long, and half as much in breadth, being now the burying-place of the Armenians. One half of it is taken up by a square fabrick, near twelve yards high, over which are five openings, in the form of cupolas, large enough to let down a corpse, the flesh whereof it is said to consume in the space of eight and forty hours. The Christians in Jerusalem give credit to this account; but Mr. Maundrell says, that looking through the holes at top, he could see many bodies under several degrees of decay; from whence he conjectures, that this grave does not make such quick dispatch with the corpses committed to it as is commonly reported.

NOT far from this field we see a cave hewn out of the rock, consisting of several rooms one within another, wherein the apostles are said to have concealed themselves when they forsook their master, on his being apprehended in the garden. This cave was perhaps at first made for a sepulchre, and might afterwards serve for a hermitage; but, be that as it will, it appears to have been formerly adorned with painting and gilding, and some pretend still to discern the pictures of several of the apostles. From hence we soon come to the valley of Jehoshaphat, where we see the well of Nehemiah, or rather a dry pit, said to be the place from whence he recovered the fire of the altar, which had lain hid there during the time of the Babylonish captivity. On the same side of the valley is the pool of Siloam, whither our Saviour sent the blind man to wash, after having anointed his eyes with earth and spittle. About a furlong from hence is the fountain of the Blessed Virgin, to which we descend by several steps, the spring lying deep

deep in the cavity of a rock. At no great distance from this place they shew us the spot where Judas hanged himself, after he had betrayed our Saviour; and a little farther, on the same side of the valley, we see several Jewish monuments, two whereof seem to be valuable antiquities, usually called the Sepulchre of Zachary, and the Pillar of Absalom.

THE first of these, supposed to be that of Zachary, who was slain between the temple and the altar, is cut out of the natural rock, and is of a quadrangular form, about six yards high, beautified with Doric columns, which support the cornice; and above that the roof rises in the shape of a pointed diamond. Absalom's pillar is lofty, and its sides and corners adorned with Doric pilasters; but after it has run a little way in a square form, it changes into a round, and terminates in a point, the top of it being almost shaped like a bell. A great many stones lie near this monument, thrown there by Turks and Jews, as well as Christians, in detestation of Absalom's rebellion against his father.

KEEPING along the bottom of the valley, we come to the Sepulchre of the Blessed Virgin, made at the expence of the pious empress heretofore mentioned. That part of it above-ground is a square building, flat at the top; and on the south side of it is a door, from whence there is a descent of about fifty steps. When we are half way down, they shew us on the right hand the sepulchre of Anna, the mother of the Blessed Virgin, and on the left, that of Joseph her husband. At the bottom of the stairs we enter a spacious church, walled on each side, and arched above with the natural rock. In the middle of the church is a little square chapel, faced with marble; and opposite to the door is the virgin's tomb,

tomb, in form of an altar, where they say she was buried by the apostles. The Turks, as well as Christians, have a great veneration for this place, and contribute to the charge of eighteen lamps, which are kept here continually burning. Each end of the church is semicircular, in one of which stands the great altar, upon which the light descends from a cupola above, and at the other end is a well of very good water.

CROSSING the valley of Jehoshaphat, we come to mount Olivet, or the Mount of Olives, the loftiest eminence in the neighbourhood of Jerusalem, which overlooks the highest part of the city, and is held in extraordinary veneration by the Christians, and even by the Mahometans themselves. Half way up the hill we come to several grottos, called the Sepulchres of the Prophets: and a little higher is a grotto or subterraneous church, consisting of twelve arched vaults. On the top of this hill, from whence the Saviour of the world ascended into Heaven, the empress Helena caused a magnificent church and monastery to be erected, the greatest part whereof is now in ruins; but there is a little octogonal chapel still remaining, with a dome over it, sustained by eight pillars of white marble. This is called the Chapel of the Ascension, and is at present in the possession of the Mahometans, who make the Christians pay a small matter for admission to see a cavity in the rock, which they pretend is the print of one of our Saviour's feet.

BETWEEN the foot of mount Olivet and the brook Cedron, we are shewn the garden of Gethsemane, a piece of ground about sixty yards square, and planted with olive-trees of an uncommon size, which are said to be the same that grew in the time of our Saviour. At the upper end of the garden

garden is a flat naked rock, where they say the apostles fell asleep during our Lord's agony; and near this place is a grotto, wherein our Saviour is supposed to have undergone that bitter part of his passion, when his sweat was as it were great drops of blood falling to the ground.

FROM Jerusalem it is usual to make an excursion to Bethlehem, which is now dwindled to a small village, but will be ever memorable for being the birth-place of the Saviour of mankind, and on this account it is much resorted to by pilgrims. Here we find a magnificent church, built by the empress, so often mentioned, over the very spot where our Saviour is supposed to have been born. We enter this edifice through a portico supported by sixteen pillars, and coming into the nave or body of the church, we find its lofty roof, which is of cedar, supported by four rows of marble columns. The choir is large, and terminates in a semicircle, where stands the high altar; and on each hand are two other divisions, with their respective altars. A noble cupola, leaded on the outside, and adorned within with mosaic figures, covers this part of the church; and near the great altar are two little flights of marble steps, by which we descend into the Chapel of the Nativity, where there is an altar, with several lamps continually burning before it. Descending a few steps lower, we are shewn the manger wherein our Lord was laid, which is hewn out of the rock, about two feet high from the floor, and is lined with white marble.

AT a little distance from the Latin convent is the Grotto of the Virgin, held in great veneration, on account of a tradition that the virgin Mary hid herself there with her son Jesus, to avoid the fury of Herod, whilst Joseph made the neces-

lary preparations for their departure into Egypt. It is of a circular form, cut out of a chalky rock, and has an altar in it, where mass is sometimes celebrated.

ABOUT four miles south of Bethlehem are those famous fountains or pools, said to have been the contrivance and delight of Solomon. They are three in number, one above another, and so disposed, that the waters of the uppermost descend into the second, and those of the second into the third. Their form is quadrangular, and each of them about ninety paces broad, but as to their length they are somewhat different. They are very deep, and lined all round with a wall, except where the natural rock makes it unnecessary; and indeed it must be acknowledged they are a work not unworthy of that wise prince whose name they bear, and contain such a store of excellent spring-water, as perhaps cannot be found in any other part of Palestine.—The remains of an aqueduct, which conveyed water from hence to Jerusalem, are still to be seen, being a sort of coarse marble stones, perforated and let into one another after the manner of pipes, and, for their better preservation, covered over with a case or arch of smaller stones, cemented together with a very durable mortar; and yet as strong as this work has been, the Turks and Arabs have so destroyed it, that though it formerly extended five or six leagues, there are only some fragments of it here and there remaining.

BUILDINGS.

NEXT to Constantinople perhaps Aleppo is the most opulent and considerable city in Turkey, if any judgment may be formed from its publick

publick structures; there being about a hundred and twenty mosques within and without the walls, and some of them very magnificent. The principal of these, supposed to have been built by the empress Helena, is a sumptuous edifice, and has a large court before it paved with black and white marble, and a great bason with a dome in the middle, supported by six marble pillars. On the south there is a fountain covered with another dome of like structure; and round this court runs a noble portico of seventeen arches on one side, and eleven at each end, under which the Turks are frequent at their devotions.——Some other mosques in Aleppo are not much inferior to this, particularly one with a large and lofty dome covered with lead, as most are in Turkey, which with the tall slender minarets make their cities look very handsome at a distance. Here are also some Turkish monasteries, one of which is a most stately building, adorned with a noble fountain, and having a fine hall paved with marble, and covered with a cupola.

THE great mosque of St. John at Damascus, formerly a Christian church, is three hundred paces in length, and sixty in breadth, and has a fine court before it, paved with stone. On the three sides of this court, which is about a hundred and fifty yards long, and eighty or a hundred broad, is a double cloister, supported by two rows of granite columns of the Corinthian order, which are exceeding beautiful and lofty. The building itself has twelve large gates covered with brass and Arabic characters. The inside is said to be finely adorned with gold and azure, but it is not easy to come at a sight of it, for no Christian is permitted to enter it without forfeiting his life or his religion. In this mosque the Turks pretend

to have the head of St. John, and some other relics; and they here maintain, that at the day of judgment, Christ will descend into this mosque, as Mahomet will into that of Jerusalem.

BUT of all the Turkish mosques, none are had in greater veneration, than that of Mecca, which is resorted to at certain seasons by prodigious numbers of Mahometan pilgrims. The Beat Al-lak, or Holy Temple, at Mecca, towards which the disciples of Mahomet turn their faces when they pray, and to which they are obliged to make a pilgrimage at least once in their lives, either in person or by proxy, is a little plain, square building, in the midst of a spacious area, encompassed by piazzas on the inside *, much like those of the Royal Exchange in London; but the square is near ten times as large; and over the piazzas is a range of domes on each side, which cover little rooms or cells, the habitations of such as give themselves up to reading and a devout life. At each corner is a minaret or steeple, from which the criers call the people to prayers. The area on each side of the enclosure is covered with gravel, except some paths that lead to the temple. Under these piazzas are forty-two doors leading into the square. The Beat Allah, or temple, which stands in the center, is a square

* This account is extracted from a work published by Mr. Joseph Pitts, who being taken captive by the Algerines, was by the force of torture inflicted upon him by a cruel bigot, his master, unhappily compelled to seem to embrace the religion of the country, when assuming the garb and manners of a Mahometan, he was admitted into their mosques, and allowed to visit the supposed sacred places of Mecca and Medina; but afterwards had the happiness to escape to England. From this account the reader will see the little credit to be given to those authors, who describe, in the most pompous terms, places which it was impossible for them to see.

solid structure, near twenty four paces each way, and about twenty feet high, formed of large stones, perfectly smooth and plain, without the least carved work. It is covered all over from top to bottom with a thick silk; and above the middle part of the covering, are letters of gold embroidered all round, containing some devout expressions. The threshold of the door is as high as a man can reach; and therefore when any person enters, steps are brought for him to ascend. The door is plated all over with silver; and a covering hangs over it, that reaches to the ground; but is turned up all the week, except from Thursday evening to Friday evening, their sabbath. This covering of the door is so thick embroidered with gold, that it weighs several score pounds. The top of the building is flat, and covered with a mixture of lime and sand. It has a long spout to carry off the water when it rains; at which times the people throng and struggle to get under it, that the water which comes off the temple may fall upon them, which they esteem a great happiness; and their joy is excessive if they can catch some of it to drink. A marble pavement, fifty feet broad, extends round the temple; on the edge of which are erected brass pillars, twenty feet distance from each other, and near fifteen feet high. Above the middle part of them, an iron bar extends from one to the other, with a brass lamp hanging to each, by a brass wire, to give light in the night; for while the pilgrims stay at Mecca, they pay their devotions, as much by night as by day.

At about the distance of twelve paces from the temple, is a building called the Sepulchre of Abraham, who they imagine built the temple by God's command. This sepulchre is enclosed with

iron grates, and adorned with a very handsome embroidered covering. At a small distance from it, on the left hand, is the Well Zemzem, the water of which is esteemed holy; on which account the pilgrims, when they first arrive at Mecca, drink of it unreasonably; by which means it not only purges them, but makes their flesh break out in pimples; and this they term, the purging away of their spiritual corruptions. Many of them carry some of this water home to their respective countries in little tin pots, and present, perhaps, half a spoonful of it to each of their friends, who receive it with abundance of thanks, in the hollow of their hand; and sipping a small quantity of it, rub the rest on their faces, and naked heads.

OPPOSITE each side of the temple is a small structure, supported on pillars, where the Imaum and the clerks perform their devotions, in the sight of all the people. These structures belong to different sects of Mahometans. The temple is the principal object of the pilgrims devotion, and is opened only two days in the space of six weeks; one day for the men, and the next for the women. On the inside are only two wooden pillars, which stand near the middle to support the roof, with a bar of iron fastened to them, on which hang three or four silver lamps. The walls on the inside are of marble, and covered with silk, except when the pilgrims enter. Those who are admitted into this structure scarcely stay ten minutes, because others wait for the same privilege; and while some are going out, others are entering in. All the Mahometans who please, have the liberty of thus passing through the temple. The covering of this structure is annually renewed, and sent from Cairo, by order of the Grand

Grand Signior, when the caravan proceeds with the pilgrims to Mecca. The new covering is carried upon two camels, which are exempted from work for the space of a year after. This covering is received with extraordinary joy by the people, who kiss the camels, and bid them welcome. The old covering being pulled down, the new one is put up by the Xerif of Mecca himself; and after he has caused the old covering to be cut in pieces, he sells them at a high price to the pilgrims.

AT Mecca are several thousand blue pigeons, which none will affright, and much less kill them; whence they are so very tame, that they will pick corn out of the people's hands. They are called the pigeons of the prophet, and come in flocks to the court of the temple, where they are fed by the pilgrims.

It ought not to be omitted that this holy house, which the vulgar say was built by Abraham, had long been an idol temple; but was dedicated by Mahomet to the Unity of God; and that their pilgrimages thither are intended to shew their detestation of all idolatry.

WE shall now proceed to Medina, the place where Mahomet lies entombed, to which he fled when driven from Mecca, and where he was first invested with regal power. It is situated about two hundred miles to the north of Mecca, and about eighty to the eastward of the Red Sea; and contains about a thousand houses built of brick and stone, which cannot be very lofty, as they are raised but one story from the ground. There are, however, several noble mosques in this city, the principal of which is named the Most Holy. It stands in the middle of the town, and is a square building, a hundred paces in length, and

eighty in breadth, supported by a great number of lofty columns. Some authors have pretended, that it has no less than three thousand lamps; but Mr. Perts, who was in it, maintains, that it has not above one hundred. In this mosque stands Mahomet's tomb, covered with a dome, and encompassed with iron rails: the tomb itself is surrounded by a silver grate, and enclosed like a bed, with curtains of rich silk. None are allowed to enter within the grate, for this is only permitted to those who go in to light the lamps by night. Some pretend, that Mahomet's coffin is suspended by the attractive virtue of a loadstone fixed to the roof; but there is not the least foundation for this absurd opinion, for the curtains that cover the tomb are not half so high as the dome; 'tis therefore impossible that the coffin should hang there, and the Mahometans never pretended that it did.

Of the ARABS.

HAVING had frequent occasion to mention the Arabs, we think it not improper to conclude this article with a concise account of that people. The Arabs, who are generally supposed to be the descendents of Ishmael, are of a middle stature, thin, of a swarthy complexion, and, like other people in the same climate, have black eyes and black hair. Their voices are rather effeminate than strong, yet they are possessed of great bravery, and are very expert at the bow and lance. The roving Arabs wear a kind of blue shirt, girt round them with a white sash, over which some of them wear a fur, or sheep-skin vest. They have a turban on their heads, and sometimes wear slippers, but never stockings. Many of them go almost naked, while their women are generally so wrapped up,

up, that nothing can be discovered but their eyes. The women Mr. Wood saw at Palmyra, had good features; for though they were veiled, they were less scrupulous about shewing their faces than is usual with the women of the East. They hang rings of gold or brass in their ears and nose; they colour their lips blue, and the tips of their fingers red. Both sexes appear extremely healthy, and to be almost strangers to diseases.

THE food used by these people is beef, mutton, venison, goat's flesh, and the flesh of camels, which they prefer to all the rest, and eat with thin cakes made of flour and water, but many of them prefer dried grapes to bread. They also eat most sorts of fish, except those which have no scales; but on whatever animal they feed, they are very careful of draining out all the blood. The people about Muscat not only abstain from wine, but from tea, coffee, and other innocent liquors; nor do they indulge themselves in smoking tobacco: water is their usual drink, and sometimes sherbet, made of oranges, water, and sugar.

THE people of the East esteem the Arabic the richest and most copious language in the world. It is every where considered by the Orientals as a learned language, and even in Persia and the Indies, the Koran is never read in any other tongue. But though the Arabs were once famous for their learning and skill in all the liberal arts, there is scarce any country where the people are now so universally ignorant as in Arabia.

It was always the custom of the Arabians to pass their summer nights on the tops of their houses, which, for this purpose, were made flat, and divided from each other by walls. This way of sleeping, says the ingenious Mr. Wood, is now almost entirely forgotten.

“ we found extremely agreeable, as by that means
 “ we enjoyed the cool air above the reach of gnats
 “ and vapours, with no other covering but the
 “ canopy of heaven, which, in different pleasing
 “ forms, unavoidably presents itself upon every
 “ interruption of rest, when the mind is strongly
 “ disposed to contemplation and silence. We
 “ could no where discover more beauties in the
 “ face of the heavens, nor fewer on the earth,
 “ than in our travels, in the night, through the
 “ deserts of Arabia, where it is impossible to
 “ avoid being struck with the contrast, in which
 “ a boundless dreary waste, without mountain or
 “ valley, tree or water, or the least variety of
 “ colours, offers a tedious sameness to the weary
 “ traveller, while he is agreeably relieved, by
 “ beholding that cheerful, moving picture, which
 “ measures his time, directs his course, and lights
 “ his way.” Hence our ingenious author, just
 mentioned, accounts for the worship paid by the
 ancient Arabians to the sun, moon, and stars,
 called in scripture, Baal, Astaroth, and the host
 of heaven. “ The warm fancy of the Arab,
 “ says he, soon felt the transition from wild ad-
 “ miration to superstitious respect; and the pas-
 “ sions were engaged before the judgment was
 “ consulted.”

THOUGH the Arabs, in this part of the world,
 are usually considered as only bands of robbers,
 yet, where they are settled, and apply to the cul-
 tivation of the earth, to trade, and the mechanic
 arts, they are justly distinguished by their justice,
 temperance, and humanity. Thus captain Say
 observes, that the Arabians near Muscat are cour-
 teous in their behaviour, extremely civil to stran-
 gers, to whom they offer no violence or affront;
 and though they have the highest veneration for
 their

their religion, they never strive to force it upon others: that a man may travel several hundred miles, without so much as meeting with abusive language; and if he has a charge of money, he needs no arms to defend it, but may safely sleep with it in his hand by the way-side; and that, though he himself lived several years in the country, during which he spent much of his time in travelling, he never heard of a single robbery amongst them. Indeed it is not surprizing, that in so extensive a country as Arabia, the manners and customs of the people should be very different.

“ It is true, says the author of a new system of geography, several Arabian princes extort money from the caravans; but, as the country is theirs, they might justly refuse to let any caravans pass through it; and, possibly, what they impose upon the caravans, may be by way of toll; which is the more probable, as the sums they demand are not so large as to discourage the caravans from passing through their dominions. But after all, there is no doubt but some tribes of the wandering Arabs live chiefly by robbery and plunder. We find that Mr. Wood and his companions, in travelling to Palmyra and Balbec, had an Arabian escort, to defend them from a prince of the Bedouins, or Wandering Arabs; and that, on their arrival at Palmyra, they slept in safety, in the huts of poor, but honest Arabian peasants.”

The Arabs who live in towns are much inferior in number to those who live in tents, and are called Bedouins. These people have no fixed habitations; but being possessed of large flocks of sheep, and herds of camels and goats, rove from one part of the country to another, where they can find pasture and water for their cattle; and

when they have destroyed all the forage, load their goods and baggage, with their wives and children, on their camels, and march in search of fresh pasture. When they encamp, their tents generally make a very indifferent appearance, they being usually covered with a coarse stuff, made of black or dark-coloured goats hair. These are the people dangerous to travellers; but if a traveller is liberal to them, they seldom do him any injury; nor are they, in this respect, the least churlish, but will invite strangers to eat with them, as they pass by their encampments, and are pleased to see them readily conform to their customs.

Those Arabians who are situated near the coast, have rendered themselves formidable at sea, particularly the king of Muscat, whose vessels not only attack those of the Asiatics, but even the Europeans, they being generally at war with the Danes and Portugeze. Their colours are red, which they display in streamers and pendants at the mast-head, and other parts of the ship, which gives their fleets a gay appearance.

OF the TRADE and MANUFACTURES of TURKEY in ASIA.

SMYRNA and Aleppo are undoubtedly the most trading and flourishing cities in all the Asiatic Turkey, vast quantities of rich merchandise being continually transported thither from Persia, Arabia, Tartary, and other countries, by caravans of mules and camels, and thence by sea to all parts of Europe. M. Tournefort considers Tocat as the center of the trade of Anatolia, and, according to his account, that city is considerable for its manufactures, especially those of copper vessels and utensils, which they make very handsome, and send to Constantinople and Egypt.

They

They have their copper from mines about ten days journey from Tocat, towards the side of Angora, and from others three days journey from Trebisond, but these are not so rich as the former. The painted cloth of Tocat is not so beautiful as that of Persia, but they vend it in Mulcovy and Crim Tartary. Their silk manufacture is not inconsiderable, a great quantity of the Persian silk, as well as Turkish, being used in making slight stuffs, buttons, frogs, &c.

THE city of Damascus in Syria is particularly famous for its manufactures of iron and steel, many thousand hands being there employed in making scimetars, swords, knives, and other cutlery wares, which are in great request all over Turkey, on account of their excellent temper.— From this city the art of Damaskeening likewise had its origin, as the name implies *; by which we mean that of adorning iron, steel, &c. by making incisions therein, and filling them up with gold or silver wire, chiefly used in enriching sword-blades, guards, locks of pistols, &c. This art is partly mosaic work, partly engraving, and partly carving. As mosaic work, it consists of pieces inlaid; as engraving, the metal is indented; and as carving, gold and silver are wrought therein in relievo. There are two methods of Damaskeening, the first of which is most beautiful, viz. when the artist cuts the metal with tools proper for engraving, and then fills up the incisions or notches with a pretty thick wire. In the other, which is only superficial, the work-

* If the art had not its rise at Damascus, the workmen of that city seem at least to have excelled in it beyond those of other countries; though M. Falsibien attributes the perfection of the art to his countryman Curipet, who was famous for it in the reign of Henry the Fourth.

man

man makes hatches or strokes across the steel with a cutting knife, such as is used in making small files. For the first, it is requisite the gravings be made in the dove-tail form, that the wire, which is thrust forcibly into them, may adhere the more strongly. In the second way, which is the most usual, as being the most easy, they heat the steel till it changes to a violet or blueish colour, and having hatched it over, they draw the design or ornament intended with a small brass point or bodkin, and then conducting or chasing the fine wire according to the figures designed, they sink it carefully with a copper tool into the hatches of the metal.—It may be added, that to the artificers of Damascus we originally owe that sort of silken stuff called Damask, which has some parts of it raised above the ground, representing flowers or other figures.

THE manner of preparing Marroquin, commonly called Morocco or Turkey Leather, which is brought to us from the Levant*, is so curious, and so little known amongst us, that we think an account of it will be no disagreeable conclusion of this chapter. This sort of leather is the skin of a goat, or some animal resembling it, frequent in the eastern countries, and is dressed black, blue, red, yellow, &c. In the preparation of these kinds of leather, the dry skins are soaked in water for three days together, and on being taken out, are stretched on a wooden horse or leg like that used by tanners, and beaten. They are

* Some suppose, from the name, that the art of preparing these skins was first borrowed from the kingdom of Morocco, but of this there is no certainty. We have them indeed from Barbary, and so we have from France and Spain; but as they are chiefly brought from Asiatic Turkey, this seems a proper place to speak of the art of dressing them.

then soaked in lime water every night, and taken out in the morning for thirty days together, the hair and flesh are then taken off. After this they are beaten in different waters, and the soaking, stretching, and drying often repeated before they receive the dye; but the particular compositions used to give the various colours are secrets lodged in the breasts of the artificers.

C H A P. H.

OF PERSIA.

S P R I N G S.

TH**E**R**E** is not, according to the best accounts, a country in the world that has more mountains and fewer rivers than Persia, and the soil in general is in many places perfectly sandy and barren, though others are exceeding fruitful, producing plenty of grain and herbage. Nor is Persia without its mineral waters, of which the most frequented are those of Baringe, half a league from Tauris, and those of Seid-Kent, another village six leagues from that city. These waters are sulphureous, and some of them scalding hot, whilst others are surprizingly cold.—About ten miles from Asleen, at the foot of a high mountain lying north of Gombron or Bender-Abassi, there are several springs, both hot and cold, which are resorted to for the cure of venereal disorders, rheumatic pains, the itch, leprosy, and other cutaneous distempers; but they are only used externally by bathing, the water, if drank, being found a very powerful emetic. No people live near these baths, but a few sheds have been

been erected for the accommodation of patients, who must take care to furnish themselves with all other conveniencies.—We might enumerate many other medicinal springs throughout this great empire, but their qualities being much the same, the repetition of them would be tedious.

F O S S I L S.

AS Persia is very mountainous, it abounds with metals and minerals, particularly copper, lead, and iron, and perhaps with gold and silver, but the Persians are too indolent to make such discoveries. They have likewise plenty of good marble; and near Bender-Congo, a seaport on the Persian gulf, there are whole hills of sulphur, from whence it is dug up in masses of different bigness, and sent in considerable quantities to the Indies.

IN the eastern parts of Persia, there is found a pale, yellow, loose earthy substance or marle, wherein nitre or salt-petre* is lodged in imperceptible particles, as a metal in its ore, and is actually obtained from thence in great abundance. This earth is moderately heavy, easily crumbles to

* It is proper to observe, that the Nitre or Salt-petre of the moderns is a quite different substance from the Nitre or Natrum of the ancients, which, though it has been neglected and not perfectly known for many ages, is found in many parts of Asia thrown up in little hillocks on the surface of the earth, in form of a coarse loose powder. This is what authors have usually called Soop-Earth, and might, perhaps, at this day, be made a profitable branch of commerce, not to supply the place of our salt-petre, it being of a very different nature, but as it would answer the purpose of potashes in the making of soap and glass. Hence the prophet Jeremiah says, (chap. ii. 22.) “ Though the sinner washes himself with nitre, yet his iniquity is marked before the Lord;” it having an absterive or cleaning quality.

powder

powder on handling, melts freely in the mouth, but leaves a grittiness between the teeth, and a strong sensation of salt-petre on the tongue. Its natural colour, as we have said, is a pale yellow, but it is sometimes found whitish, reddish, or almost black, from an admixture of other earths amongst it, though the yellower it is, the stronger is the taste of the nitre.

THE method of obtaining the salt from this earth or ore is by water, which does to it what fire does to the ores of metals. For this purpose a large deep pit is prepared, well lined on the inside with clay, which being half filled with water, the earth is thrown into it, where it is broken and mouldered to powder, and all well stirred together. Having let it stand four or five days, they open a hole in one side of the pit, which lets out all the clear water into a channel, through which it runs into another wide and shallow pit, level at the bottom, surrounded by slight walls, except on the north-east side, and open at the top to the sun, whereby the water gradually evaporates, and the salt it had imbibed from the earth shoots into small crystals, which are the rough salt-petre we receive from the eastern countries. This is the way of procuring the far greatest quantity of nitre that is made in the world, so that this earth seems to be its most natural ore, though there are various other methods of obtaining it*. The uses of salt-petre in making gunpowder,

* Philosophers generally allow the air to be impregnated with a volatile nitre, thence communicated to pinguous alkaline earths, and other substances adapted to receive it; and Hoffman affirms, that nitre may at any time be extracted from the air, by exposing to it an alkaline salt, in a place not open to the rain and dews. The winds blowing from the northerly and easterly points, contribute most to the genera-

tion

gunpowder, and in preserving substances as common salt, are well known; and in medicine it is of such excellent service in fevers, inflammations, and several other disorders, that it seems worthy of all the regard that is paid to it in the present practice.

THERE is another kind of salt, called Borax, whose composition, whether natural or artificial, seems, till of late, to have been little understood. However, at present it is known, that in many parts of Persia, as well as in the dominions of the Great Mogul, and other eastern countries, there oozes from the sides of hills that abound with metallic ores, especially that of copper, a muddy water of a blueish grey colour, sometimes a little reddish, and sometimes greenish, but the two last dyes are only accidental. It is of a brackish, bitterish, and very nauseous taste, and has sometimes a bituminous matter swimming on its surface. This water, where it runs in sufficient plenty, is directed in its course into several wide and shallow pits, where it is left to evaporate; but those who have the care of the pits are frequently putting in large quantities of the mud deposited by the water in its channel, or about the mouth of the spring,

tion of nitre; and it is observable, that the earth we have been describing is always found on the sides of hills facing those quarters. Earths moistened with the dung and urine of animals, as those of sheep-folds, stables, pigeon-houses, and the like, all afford more or less nitre; and in France great quantities of this salt are annually made, by boiling in water the matter of old walls, the plaster of ruined buildings, the earths of places where animals have been fed, &c. which salt they refine by boiling it three or four times, and passing it through several lyes: and why might not a manufactory of this kind be set up and carried on in England with as much advantage as at Paris, where such a one has been many years established?

which they mix thoroughly by stirring it about, and from time to time skim off the bituminous substance, whenever it appears. The whole being, by evaporation and the addition of mud, brought to the consistence of a soft pap, they throw over it, in the heat of the day, a large quantity of melted fat, and having stirred it well together, they immediately cover it with a light crust of dried vegetables, small branches of trees, or the like, and over that lay a thin covering of any common clay. Thus it is left to the action of the sun; and when it is judged, by making trials about the edges, that the moisture is wholly evaporated, which is usually in seven or eight days from the covering of the pits, the coat of clay and the vegetables are removed, and there appears a loose crumbly substance, which being gently broke to pieces with spades and sifted, the loose earthy powder runs through the sieve, and leaves behind it the salt concreted from the evaporated liquor. This is what we call Rough or Native Borax, and is in rude irregular masses, very foul, earthy and fattish, of a greenish colour, and a disagreeable smell: but for medicine and other uses, it is refined by a chymical process, and when perfectly purified, is clear and transparent like rock-crystal.—Borax is used in soldering and fusing of metals, and by the dyers to give a gloss to silks. In Italy the ladies use it as a cosmetic; and with us it is of considerable repute in medicine, being incisive and aperient, and therefore effectual against diseases proceeding from an inspissation of the humours, and obstructions thence arising. It is also of service in promoting the Menses, and facilitating delivery.

ABOUT ten miles from Baku, a city situated by an excellent haven in the Caspian Sea, is a phae-

nomenon

phenomenon of a very extraordinary nature, called the Everlasting Fire. The soil is dry and rocky, and there are built upon it several ancient temples of stone, supposed to have been all dedicated to fire; and among these is a little temple, in which the Gauries, a sect who consider fire as the most perfect resemblance of the Deity, perform their devotions. Near the altar is a large hollow cave, from the end of which issues a blue flame, like that of a lamp burning with spirits, but, to appearance, more pure. This flame, the Indians pretend, has continued ever since the flood, and they fancy it will last to the end of the world. Mr. Hanway observes, that, at a small distance from the temple, is a low cleft of a rock, in which is a hollow gap, two feet from the ground, near six long, and about three broad; from which also issues a blue flame like that already described: in still weather it burns low, but when the wind blows, it sometimes rises eight feet high, and yet it is not perceived that the flame makes any impression on the rock. But what appears still more extraordinary, is, that the earth, for above two miles round this place, has this extraordinary property, that on taking up two or three inches of the surface, and applying a live coal, the part uncovered instantly takes fire, almost before the coal touches it: the flame heats without consuming the soil, nor does it affect the earth that is near it; yet this earth, carried to another place, does not produce this effect. If a cane, or even a paper tube, be set about two inches in the ground, and closed up with earth below, on touching the top of it with a live coal, and blowing upon it, a flame immediately issues, without burning either the cane or the paper, provided the edges be covered with clay; and this method

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the people here use for light in their houses, they having no other floor but the earth. Three or four of these lighted canes will boil water in a pot; and thus they dress their provisions: yet the flame may be extinguished in the same manner as that of spirits of wine. The ground is here dry and stony, and the more stony it is, the stronger and clearer is the flame. It is said to burn lime to great perfection, and has a sulphureous smell, like Naptha, but this smell is not very offensive.

NEAR the place where is found this remarkable phenomenon, brimstone is dug, and springs of Naptha are found. The principal place for the black or dark grey Naptha, is the small island Wetoy, in the Caspian sea, which is uninhabited, except when they are taking Naptha. The springs boil up highest when the weather is thick and hazy, and the Naptha frequently takes fire on the surface, running in great quantities, in a flame into the sea, to an almost incredible distance from the shore. But in clear weather the springs do not boil up above two or three feet in height. This oily substance, in boiling over, becomes of such a consistence, that by degrees it almost closes up the mouth of the spring, and sometimes it closes it up entirely, forming a hillock as black as pitch; but when a spring is thus stopped up in one place, it breaks out in another; and some that have not been long open, form a mouth eight or ten feet in diameter. This substance has a disagreeable smell, and is principally used by the poor in lamps, and to boil their provisions; but it gives the food a disagreeable taste. It burns best when mixed with a small quantity of ashes; and as there is great plenty of it, every family is well supplied. The people keep it in earthen vessels under ground, at a small distance from their

their houses, on account of its being very liable to take fire. In the peninsula of Apcheron is a white Naptha of a much thinner consistence, which the people drink as a cordial and medicine: it is also used externally, and is said to be carried into India, where, being properly prepared, it is made into a most beautiful and lasting varnish.

THE Turquoise or Turcois stone is found nowhere finer, or in greater plenty, than in Persia. This fossil, which, from its beautiful colour, has been always accounted a gem, is in reality no other than a copper-ore, and that far from one of the hardest kind. It is found in the fissures of stones that contain copper, either in single knobs, from the size of a pea to that of a walnut, or in clusters of these ranged side by side, and forming large flat masses. Its colour is a fine pale blue, with some small admixture of green; and it is naturally of a smooth and bright surface, so that it is often worn without any additional polish. But there is another sort of turquoise, which is a quite different substance from the former, it being the teeth or bones of animals, that have lain in the earth in the neighbourhood of copper-ore till they have been tinged by it with deep blue spots and veins, which, when the bone is put into a gentle fire, diffuse themselves through the whole substance, and make it of a beautiful pale blue*.

* There are several mines of these turquoises in France, and most of what are now worn are of this kind. An accurate observer may often trace the grain of ivory even in the finest of them; for some parts of the streaks of the bone having been harder than the rest, and received much less of the colour, are easily distinguished by their whitish cast. The heating of them, to diffuse the blue through the whole substance, is a matter of much nicety, for some of these turquoises require a greater degree of heat to bring them to their colour than others: and if the heat be too intense, it will take the colour quite away.

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The finer and more perfect of either of these kinds of the turquoise are said by our jewellers, to be of the Old Rock, and those that are less perfect and valuable, are called turquoises of the New Rock; which distinction we suppose proceeds from what Tavernier relates, of two mines of those names in Persia, the stones found in the latter being much less esteemed than those of the former.—The great defect of all turquoises is, that in time they lose their blue colour, and become green, and then cease to be of any value; besides, they are easily counterfeited, and that so perfectly, that it is scarce possible to discover the deceit*.

THE Lapis Lazuli found in Persia and other Asiatic countries, is the most esteemed, though it is likewise to be met with in Africa and America, and also in Europe. This is for the most part of a beautiful deep sky-blue, but always variegated with a white matter, and adorned with veins of a gold colour. The yellow veins are very bright and glossy, and the white have been usually taken for a spar, but are really a debased crystal. It is capable of a fine polish, and is most beautiful when the golden marcasite is dispersed over it in distinct spots, and not in the form of veins, and when the white matter is very pure and pellucid; in which state some naturalists suppose it to be the Sapphire of the ancients. The Lapis Lazuli of Asia likewise affords the painters that fine blue called Ultramarine †, which never changes,

* Dr. Hill tells us, that he wears in a ring a turquoise of his own making, from a hard bone tinged with a tincture of copper in an alkali, which is equal to many of the finest native turquoises, and is allowed by the jewellers to be a turquoise of the Old Rock.

† This blue is one of the richest and most valuable colours used in painting. It is prepared by calcining the stone in an iron

changes, whereas the German is apt to turn to a greenish colour. The Asiatic stone will also bear the fire, which those will not do that are found in Europe.

VEGETABLES.

OF the vegetable productions of Persia, none deserves our attention more than the Date-Tree, a species of the palm, which is not peculiar to Persia, but grows in Egypt, and other warm countries. This tree runs up very high in one stem, which is seldom more than a foot in diameter, though sometimes they are much thicker. The wood is porous, and that which is most solid has a coarse grain; but its greatest singularity is, that the heart of the tree is softest, the outer parts being most hard and durable. From the boughs, as the tree grows up, issue a great number of small fibres, which cross one another like net-work, and of these the people make cords, and brushes for their cloaths. Of the leaves they make baskets, besoms, &c. and of the branches all sorts of cage-work, and boxes to pack up goods in.

iron pot or crucible, then grinding it very fine on a piece of porphyry, and afterwards mixing it up with a paste made of wax, pitch, mastich, oil and turpentine. This paste must be washed well in clear water, to separate the colouring part from the rest, which precipitates to the bottom in form of a subtil, beautiful blue powder. The water is then poured off, and the powder at bottom dried in the sun, which is the true ultramarine. Those who prepare this colour have usually four kinds, obtained by so many different lotions, the first of which is best, and sometimes so fine, as to be sold for eleven pounds sterling per ounce; whereas the last sort may be had for about twelve or fifteen shillings.—It is said the method of making this colour was first discovered in England, and that a member of the East-India Company, having a quarrel with his associates, to be revenged of them, made the secret public.

The

The palm-tree, as Dr. Shaw informs us, is chiefly propagated from young shoots taken from the roots of full-grown trees, which, if well transplanted and taken care of, will yield fruit in six or seven years; whereas those which are raised immediately from the stone, will not bear till about their sixteenth year. About thirty years after transplantation, the tree is in its greatest vigour, and continues so for seventy years longer, bearing clusters of dates weighing fifteen or twenty pounds; but from that period it gradually decays, and usually falls towards the end of its second century. The date or fruit of this tree is in a sort of sheath, which opens as it grows; and it is remarkable, that the male tree bears large clusters, full of a whitish Farina, with which the young fruit of the female must be impregnated, or it never comes to perfection. This is done in Persia, according to M. Thevenot, by taking two or three blossoms of the male cluster, and inserting them in the sheath of the female; and Dr. Shaw tells us, that in the kingdoms of Algiers and Tunis, they use the same method: but in Egypt they take a whole cluster of the male tree, and sprinkle the Farina of it over several clusters of the other.—As to the fruit or dates themselves, they are usually round, longish, and yellow, but frequently reddish on one side, of a pleasant sweet mucilaginous taste, having a hard stone inclosed in a thin white pellicle. They are of various sizes, and are brought to us from different countries, but those from Persia exceed all others in largeness, taste, and colour.—Dates are frequently used in medicine, being good against spitting of blood, diarrhœas, and all disorders of the reins and bladder. They are of service in stopping immoderate discharges of the Menfes, and procuring a retention of the Fœtus;

and they are proper in coughs, hoarseness, and pleurifies. A decoction of them is often used to promote the eruption of the small-pox. But after all, they are difficult of digestion, cause pains in the head, and occasion obstructions in the Viscera; for which reason those who feed much upon dates become scorbutic, and lose their teeth betimes.

THE Pistachio Nut is the product of a kind of turpentine-tree, growing in Persia and other eastern countries. This fruit, with no other covering but its shell, resembles a small nut, but when wrapt in all its coats, it is of the size of a green almond. The kernel is red without, and green within, and its taste very agreeable. These nuts are used in ragouts, comfited, made into conserves, &c. and being heating, moistening, attenuant, and aperitive, they are of some service in medicine. They are principally used in stuffings of the lungs and obstructions of the liver; they strengthen the stomach, repress a nausea and vomiting, excite an appetite, and afford good nutriment.

PERSIA has likewise most of the fruits of Europe; they have nectarines and peaches that weigh sixteen or eighteen ounces each; and particularly an apricot, red within, called the Egg of the Sun. These are dried and exported in great quantities. They boil them in water, which is thickened by the juice of the fruit, and converted into a perfect sirrup, without sugar.

ONE of the most singular productions of this country is *Assa Foetida*, of which we have had, for a long time, a multitude of various and false accounts, till *Koempfer* gave a perfect and particular description of the plant from which it is produced. The root is perennial, and very large, covered with a thick black rhind, and within perfectly white, and full of a white, milky, and stinking

stinking juice, which, when collected and dried, is what the Europeans call *Assa Foetida*. The stalk is as thick as a man's arm, and grows to eight or nine feet high, gradually tapering towards the top; whence it is divided into a small number of branches. The leaves, which are very large, and like those of the plony, stand alternately on the stalks. The flowers are small, and the seeds, which are flattish, and of an oval figure, have somewhat of the *assa foetida* smell. It grows plentifully only in two places in Persia: these are the mountains about Heraat and the province of Laar, where the leaves are of a horrible offensive smell, so that no animal will touch them. It is very singular in this plant, that it seldom flowers, sometimes not till its twentieth, thirtieth, or even fortieth year; during all which time the root is encreasing in size, and consequently sometimes grows to an enormous bulk, roots of it having been seen of the thickness of a man's thigh, and of a yard and a half in length; but those of the thickness of one's arm are frequent. When it sends forth a stalk, and has ripened its seed, it perishes. All the *assa foetida* we have is obtained from the root, and they never make incisions from it till it is four or five years standing; it being always found, that the older and larger the root, the more plentifully the juice flows. The juice, as it comes from the root, is white, perfectly resembling cream; but on being exposed to the air, it hardens, becomes viscous, and coloured. The most strongly scented *assa foetida* is always esteemed the best; and Kœmpfer observes, that it is so much stronger when fresh than when kept and imported into Europe, that a dram of it has more scent than an hundred weight of that kept by our druggists.

Assa-Fœtida is given, not only against hysterical complaints, flatulent cholics, and obstructions of the breath, but in most nervous disorders. It is most commodiously taken in the form of pills, from a few grains, to a scruple or half a dram.

FROM these productions of the land let us proceed to consider a marine vegetable, namely Coral, which grows plentifully in the Persian gulf. The ancients took coral to be a stone, but most of the moderns rank it among the number of sea-plants. M. Tournefort, that able botanist, maintains, that it multiplies by seed, though neither its flower nor seed be known; but the count De Marsigli has discovered some parts therein, which seem to serve the purpose of seeds and flowers. Allowing coral then to be a plant, it has a root, fastened to the rock on which it grows. These roots are covered with a bark full of starry pores, which traverse them from top to bottom. A little way from the root, the plant is divided into small branches that have white streaks, which seem to represent a kind of fibres. The extremities of the branches are softish, and rounded into little knobs, commonly divided into six cells, filled with a fatish milky humour, sharp and astringent. And that nothing may be wanting to constitute a real plant, these round tumours are a kind of pods, containing the seed of the coral; for wherever the inclosed juice happens to be shed, and meets with a hard body to fix on, it produces a coral plant; whence it is, that in the cabinets of the curious we find some of it on dead men's skulls, and other kinds of solid bodies, which chance has thrown in the way of the scattered seed. Coral usually grows in the caverns, or on the prominent parts of rocks at the bottom of the sea, but it vegetates the

the contrary way to all other plants, the root adhering to the top of the cavern, and the branches shooting downwards. Hence an objection naturally arises against its being propagated by seed; for as it grows with its head downwards, the seed, if it bears any, must, when come to maturity, fall to the bottom of the cavern. To which it may be answered, that the seed of coral is probably so very fine, as to be lighter than the water, in which it may likewise be buoyed up by the milky juice that surrounds it, which is of an unctuous nature. The consequence of this is, that those seeds which rise to the surface of the water, and there swim about at random, perish and come to nothing; whereas those which meet with crevices and vaults of rocks in their way, to fasten themselves to, unfold their tunicles, and flourish into a little tree.—Upon a nice examination of the several parts of coral, the count De Marfigli concludes, that all its organism, with regard to vegetation, consists in its rind*; that the

* As the terrestrial plants were made to live on those juices which pervade the pores of the earth, or fluctuate in the air, they are provided with roots, fibres, and capillary vessels, to attract the water out of the ground, and with branches and leaves to imbibe the moisture of the atmosphere; whereas the marine plants, which find in the waters all that is necessary for their vegetation, have no occasion for large roots to supply them with the juices of the earth, they being nourished without their assistance. In a word, whether we allow coral and such-like substances the name of plants or no, we must acknowledge them to be regular productions, which keep up the continuation of their species, and in which chance has no more share than it has in the propagation of flowers and fruits upon the land: and though the body of water that covers them conceals from us the manner of their operation, the different steps of their growth and progress, and the particular uses for which they are appointed; yet reason can so far penetrate into the mysteries of nature, as to discern in those

the tubes of this rind filtrate a juice which fills the little cells, and runs along the canals to the extremities of the branches, and that this juice being petrified, both in the cells encompassing the coralline substance, and in those of the ends of the branches whose substance is not yet formed, makes the plant grow and increase in its dimensions.

THERE are three kinds of coral, White, Red, and Black, the first of which is rarest and most esteemed, but the red is commonly used in medicine. It is drying, cooling, and astringent, sweetens the blood, frees the stomach from acid juices, strengthens the liver, and stops fluxes.

THE time of the coral fishery is from April to July, and the principal places for it, besides the Persian gulf, are the Red Sea, and some parts of the Mediterranean, both on the coasts of Africa and Europe. The method of fishing is nearly the same in all places, and is as follows. Seven or eight men go in a boat, provided with a machine to tear up the coral from the rocks, which is composed of two pieces of wood crossing each other at right angles, with a leaden weight at the center to sink them, and a strong net at each end to entangle the coral, besides a quantity of hemp loosely twisted. This is let down into the sea by a rope, and being moved along the sides of the rocks, the coral growing on the prominent parts is embarrassed amongst the nets and hemp, and is

things that are in a great measure hidden from us, as well as in those that are fully discovered to us, fresh proofs of an infinite wisdom displaying itself in the order and oeconomy of the whole universe, and making a liberal provision for the inhabitants of the water as well as those of the land; and, in short, of a Providence that has so constituted and disposed every part of nature, at to make it most effectually conduce to the benefit of mankind.

drawn

drawn up by the fishermen, who, by the sudden breaking of the rope, are sometimes in danger of drowning. Thus much for the vegetable productions of Persia; our next step is to take a view of some of its animals.

A N I M A L S.

THE horses of Persia are the finest in all the East, (except those of Arabia) being taller than the English saddle-horses, exactly proportioned, very light and sprightly, and excellent travellers. To say nothing of their camels and mules, which are of wonderful service, they have a breed of Arabian asses, the best in the world. These have smooth shining hair, carry their heads high, are light and nimble, and move gracefully along. These do not carry burdens, like the common dull asses of the country, but are kept for riding, and are so much valued, that some of them are sold for above thirty pounds sterling, and none tolerably good are to be had under twenty. The Persian oxen have a sharp-pointed bunch on the back, near the neck, and the country-people make use of them to ride upon, as well as to carry burdens.

In general it may be said, that wild beasts are not very common in Persia, because there are few forests; but in the province of Tabristan, the ancient Hyrcania, which is full of woods, there are abundance of wild bears, tigers, leopards, bears, jackals, and other animals.

THE Antelope, according to M. Thevenot, is a creature very common in Persia. It is shaped like a deer, has fine large black eyes, a long slender neck, and his horns grow almost straight up from his head, tapering gradually, with rings at equal distances from each other. This beast is

remarkable for its swiftness, on which account it
 is said to be seldom taken alive; but our French
 traveller, if he means the same animal, does not
 seem to represent the taking of it as such a diffi-
 cult matter. He tells us, they have a method of
 hunting the antelope with a creature called an
 ounce, which is brought from Arabia, and is
 trained up for that purpose. The huntsman
 usually carries the ounce behind him on horse-
 back, having a chain about his neck, and keeping
 a cloth before his eyes till they discover an ante-
 lope; upon which he pulls off the cloth and chain,
 and lets the ounce go in pursuit of his prey. The
 ounce having got sight of the antelope, creeps
 softly towards him on his belly, hiding himself,
 if he can, behind the hedges, till being come
 within a little distance, he takes two or three
 great leaps, and seizes the antelope. If he hap-
 pens to miss his aim, he pursues no farther. The
 Persians also train up falcons to hunt the antelope,
 having the stuffed skin or figure of that animal,
 on whose nose they constantly feed the falcons.
 Having spied an antelope, they let fly two of these
 falcons, one of which fastens just upon the nose
 of the creature, who endeavours to shake off his
 enemy, whilst the bird flutters to keep his hold,
 which hinders the antelope from running or see-
 ing well before him. However, if he happen to
 disengage himself from his first assailant, the fal-
 con that is aloft stoops and supplies the place of
 the other, which immediately points up and keeps
 above, ready to succeed his companion, if he
 should be shaken off by the antelope. Thus the
 falcons harass the poor animal, and hinder his
 running, till the dogs come up, who soon make
 an end of the diversion.

Those

THOSE parts of Persia which lie near Arabia are very much infested with Locusts, and therefore it seems not improper to give some account of that insect, especially as it serves for food in these eastern parts of the world. The usual size of this creature is about two inches and a half in length. It has a large brown head, with two prominent lenticular eyes, three pair of legs, taking their origin from the Thorax, the hindermost pair being thick at the thighs, and prickly. Its wings are membranaceous, of an ash-colour inclining to a red or purple, with many brown spots on them, and its back is guarded as it were with armour.—Sir Hans Sloane, in his Natural History of Jamaica, says, that colonel Needham, who had lived some time in Teneriffe, informed him, that the locusts destroyed all the product of that island. They came from the coast of Barbary, and having flown as far as they were able, one of them alighted in the sea, and another upon that, so that, one after another, they made a heap as big as the greatest ship above water, and were thought to be as many under. Those above water, after the sun had refreshed them next day, took flight again, and came in clouds to the island, where the soldiers were got together, to the number of seven or eight thousand, who laying aside their arms, some took bags, some spades, dug trenches, and covered the insects with mould. Their labour, however, had not the intended effect, for many of the locusts escaped, and being revived by the sun, did great damage to the vineyards.

THE locusts that appeared in England in 1748, nearly resembled a grasshopper in form, but were more robust, of a different colour, with four large wings, like those of the horse-flinger. They

were brown and transparent, divided into panes by a small black line, and their texture was very elastic. The wings of one of them, whose body was two inches and a half in length, measured five inches when extended; and some were taken of a larger size. The body of the insect was scaly, its head large, its face streaked with brown and white, and its eyes of a hazle colour. Its jaws opened and shut horizontally, and were of a black, hard, horny substance, not keen but blunt, and meeting with great exactness. The tongue was like a small French bean, and over the jaws it had a covering, which it could contract at pleasure, or put forth from its mouth to a considerable distance. This thin substance is probably of use to the creature in drawing towards it blades of grass, or whatever else it eats that is of a yielding nature.

UNDER the article of Vegetables we have given an account of the coral-fishery in the Persian gulf, and now we are speaking of Animals, it is proper to take notice of that of pearls, for which that part of the sea has always been celebrated. Pearl is a hard, white, shining body, usually roundish, found in a shell-fish resembling an oyster, and ranked in the number of gems or precious stones. The formation of pearls has puzzled both ancient and modern naturalists, and has given occasion to several extravagant hypotheses. Pliny, Solinus, and others of the ancients, supposed them formed of the dew, which, say they, the fish rises every morning to the surface of the water, and opens its shell to imbibe; but this is manifestly false, the pearl-oysters growing fast to the rocks, and never rising to the surface.

IN the memoirs of the French academy, M. Reaumur has a very curious piece on the formation
both

both of shells and pearls, where he observes, that pearls are apparently the effects of a disease in the fish, they deriving their origin from a juice extravasated out of some broken vessels, and detained and fixed among the membranes. To evince the possibility of this, he shews that the shells of sea-fishes, as well as those of snails, &c. are wholly formed of a glutinous stony matter, oozing out of the body of the animal; and therefore it is no wonder that such animals as have vessels, containing a sufficient quantity of stony matter to build and extend a shell, should have enough to form stones, in case the juice destined for the growth of the shell should happen to overflow, and burst forth in any cavity of the body, or among the membranes. To confirm this system, he observes, that the inner surface of the common pearl muscle is of a mother-of-pearl colour in one part, and reddish in another; and the pearls found in this fish are likewise of two colours, exactly corresponding with those of the shell; which shews, that in the same place wherein the transpiration of a certain juice had formed a coat or layer of shell of a certain colour, the vessels which conveyed that juice being broke, a little mass or collection of it is formed, and hardening, becomes a pearl of the same colour with that part of the shell to which it corresponds.

THE perfection of pearls, whether round, in form of pears, or irregular, consists chiefly in the lustre or clearness of the colour*, which is called

* The size, as well as the water, makes a great difference in the value of pearls. That mentioned by Tavernier, in the hands of an emperor of Persia, in 1633, was bought of an Arab for 32,000 tomans, which, at 31. 9s. the toman, amounts to 116,400l. sterling.

the Water. The white ones are most esteemed in Europe, but some of the Indians and Arabs prefer those which border on the yellow. Some are of a lead colour, others blackish, but all are liable to change in wearing, especially the white ones, which turn yellow in forty or fifty years time, and are of little value. Pearls have this advantage over precious stones dug out of the rocks, that the latter owe their lustre to the industry of men, but the former are found perfectly polished in the abysses of the sea, and nature has put the last hand to them ere they are separated from their mother.

It is to be observed, that what we call Mother of Pearl is not the shell of the pearl-oyster, but of another fish of the oyster kind, called *Auris Marina*, or the Naker. The inside of this shell is very smooth and polished, and of the whiteness and water of pearl itself, together with a delightful mixture of red, blue, and green; and its outside has the same lustre after the first leaves have been cleared off by *Aqua Fortis* and the lapidary's drill.—Wens of pearl are certain excrescences in form of half-pearls, sometimes found in the bottoms of the pearl-shells, which the lapidaries have the skill to saw off and join together, and use them in several works of jewelry*.

ONE

* There is a curious method of making counterfeit pearls, which is owing to the *Sieur Janin*, and seems worthy to be described. This artist having observed, that the scales of the little fish called the Bleak had not only all the lustre of the real pearl, but that after beating them to powder in water, they returned to their former brilliancy upon drying, he thought of setting a little mass thereof in the cavity of a bead, made of a kind of opal or glass, which had likewise a pearly colour. For this purpose he made use of a glass tube about six inches long, sharp at one end, and somewhat crooked, through which he blew a drop of the matter into the bead, and

ONE of the most noted pearl-fisheries, as we have already hinted, is in the Persian gulf, and particularly near the island of Baharem, but there are several others, both in the Indian seas, and in those of America. There are two seasons of fishing for pearls, the first in March and April, the second in August and September, and during these seasons there appear about the above-mentioned islands some hundreds of fishermen's barks, each provided with one or two divers, who perform feats that are almost incredible. When the barks have cast anchor, which they commonly do in about five fathom water, the diver binds a heavy stone under his body, which is to serve him as ballast, to prevent his being driven away with the motion of the sea, and enable him to walk more steadily. Besides this, he ties another stone to one foot, which makes him sink to the bottom in a moment; and he carries down with him a large net, in manner of a sack, which is tied to his neck by a cord, whereof one end is fastened to the side of the vessel. This sack is intended for the reception of the oysters gathered from the rocks, and the rope is to pull up the diver when his bag is full, or he wants to take breath. To prevent his hands being wounded by the rocks or shells, he wears leathern mittens; and thus equipped, he precipitates himself to the bottom, where he makes the best use of his time in tearing and to spread it equally throughout the inner circumference, he shook it gently a long time in a basket lined with paper. The pulverized scales, fastened by this motion to the inside of the bead, resume their lustre as they dry, and nothing remains but to stop up the aperture, which is done by melted wax, conveyed into it with a tube like that used in introducing the dissolved scales. The superfluous wax being cleared away, the beads are perforated and strung, and to commence necklaces.

off the oysters he meets withal, and cramming them into his budget. When he finds himself straitened, he gives the rope a pull, and holding fast by both hands, the people in the bark draw him up, and unload him of his fish, which are sometimes five hundred oysters, sometimes not above fifty. The best divers, it is said, will keep under water for half an hour, and few of them less than a quarter; and this violent exercise they continue many hours without intermission *. The water

* We shall not pretend to vouch for the truth of all that is related concerning these divers, especially that particular of their continuing so long under water. Some divers help themselves by carrying down sponges dipped in oil in their mouths; but, considering the small quantity of air that can be contained in the pores of a sponge, and how much that little will be contracted by the pressure of the incumbent air, such a supply cannot long subsist the diver; it being found by experiment, that a gallon of air included in a bladder, and by a pipe reciprocally inspired and expired by the lungs, becomes unfit for respiration in little more than a minute; for though its elasticity be not much altered in passing the lungs, yet it loses its vivifying spirit. Hence some have contrived double flexible pipes, to circulate air down into a cavity, inclosing the diver as with armour, so that his breast might have room to dilate upon inspiration; the fresh air being forced down one of the pipes by bellows, and returning by the other, not unlike a vein and artery. But, when the depth exceeds three fathoms, this method is found impracticable, the water obstructing the circulation of the blood in the limbs, and pressing so strongly on the junctures where the armour is made tight with leather, that if there be the least defect in any of them, it instantly rushes in and fills the whole machine, to the great danger of the diver's life. The Diving-Bell is an engine contrived to remedy these inconveniencies, wherein the diver is safely conveyed to any reasonable depth of water, and many stay there more or less time, according as the bell is greater or less. The latest improvements in the diving-bell have been made by our ingenious countryman Dr. Halley, and Mr. Friewald of Stockholm. The doctor's bell was three feet wide at top, five feet at bottom, and eight feet high, containing about sixty-three

water is usually very clear, so that the diver can easily see what he is about; but, to prevent his being seen by ravenous fishes, he sometimes makes the water muddy; notwithstanding which, the divers now and then fall a prey to these monsters

of three cubic feet, or near eight hogsheds, in its concavity. This was coated externally with lead, so heavy, that it would sink empty, and a weight distributed about its bottom, to make it descend perpendicularly, and no otherwise. In the top was fixed a strong clear glass, to let in the light from above, and a cock to let out the hot air. Below was a circular seat for the divers to sit on, and from the bottom was hung by three ropes a stage for them to stand on to do their business. This machine was suspended from the mast of a ship by a sprit, which was sufficiently secured by stays, and directed by braces to carry it over-board clear of the ship, and bring it in again. To supply the bell with air when under water, there were two barrels, holding each thirty-six gallons, and cased with lead to make them sink empty. These had a hole in the bottom to let in the water according as the air was condensed in their descent, and to let it out again when they were drawn up from below. In the top of the barrels was another hole, to which was fixed a leathern pipe or hose, long enough to hang below the hole at the bottom, being kept down by a weight appended; so that the air driven by the water to the upper part of the barrels, could not escape, unless the lower end of these pipes were first lifted up. These air-barrels were fitted with tackle, so as to rise and fall alternately, like two buckets; and were directed in their descent by lines fastened to the under edge of the bell, so that they came readily to the hand of a man standing on the stage to receive them, who lifting up the ends of the pipes above the surface of the water in the barrels, all the air included in the upper part thereof was driven into the bell, the water taking its place. One barrel being thus emptied of air, was drawn up upon a signal given, and the other let down to be ready for use; by which method fresh air was furnished so plentifully, that the doctor tells us, he himself was one of five who were together at the bottom in nine or ten fathoms water, for above an hour and a half, without any ill consequence, and might have continued there as long as they pleased, for any thing that appeared to the contrary. All the precaution the doctor observed,

of the deep, and of all the perils attending the pearl-fishery, this is one of the greatest and most usual.

The barks unload their oysters on the shore, and lay them in a great number of little pits, dug
four

served, was to be let down gradually, about two fathoms at a time, and then to stop and drive out the water that had entered, by letting in three or four barrels of fresh air; and being arrived at the intended depth, he let out as much of the hot air as the barrels would replace with cold, by turning the cock at the top of the bell, through whose aperture, though very small, the air would rush out so strongly, as to make the sea boil at the surface. The only inconvenience people complain of in descending, is a small pain in the ears, as if the end of a quill were forcibly thrust into them, which alternately abates and returns, till they are got to the bottom, where the air continues of an equal density. By this means the doctor found he could lay the bottom of the sea, just within the compass of the bell, so far dry, as not to be over shoes thereon; and the glass admitted so much light when the sun shone, and the sea was clear and even, that he could see perfectly well to write and read, and by the return of the air-barrels, could send up orders, written with an iron pen on small pieces of lead, directing how he would be moved from place to place. At other times, when the water was rough and troubled, it would be as dark as night below; but then a candle might be kept burning in the bell, which was found by experiment to consume much the same quantity of confined air as a man does, viz. about a gallon in a minute.—This bell was so far improved by the doctor, that a diver might be detached from it to the distance of eighty or a hundred yards, by means of a cap or head-piece, somewhat like an inverted hand-basket, with a glass in the fore part, that he might see his way. This cap was of lead, made to fit quite close to the shoulders, and in the top of it was fixed a flexible pipe, communicating with the bell, by which he had air when he wanted, and which being coiled round his arm, served as a clue to direct him back again to the bell.

After this, one would think little or nothing was wanting to the perfection of diving; but M. Triewald observing, that Dr. Halley's ingenious invention could not be made use of without considerable charge, it requiring a large vessel, and

four or five feet square, raising heaps of sand over them the height of a man. In this condition they are left till the rain, wind and sun, have obliged them to open, which soon kills them, the flesh rots and dries, and the pearls, thus disengaged, tumble

and a number of hands to work and manage the machine, bethought himself of a lesser bell somewhat different in form, which might easily be managed by two hands, and yet answer all the purposes of the doctor's. It is true, a man in a large bell has more air than in a less, and consequently should be able to subsist longer on a large than on a small quantity; but in Mr. Triewald's bell, the stage is suspended at such a distance from the bottom, that when the diver stands upright, his head is but just above the water, where the air is cooler and fitter for respiration than towards the top of the bell: and yet when there is occasion for the diver to be wholly in the bell, and his head of course in the upper part, it is so contrived, that when he has breathed the hot air as long as he well can, he may then draw the cooler and fresher air from the lower part, by means of a spiral copper tube placed close to the inside of the bell, to the upper end of which tube is fixed a flexible one of leather, and to the end of that an ivory mouth-piece, which the diver holds in his mouth, and respire the fresh air from below; and this he may do in any posture, as standing, sitting, bowing his body, &c. This contrivance is the better, as it occasions a circulation so necessary to the very being of air, and its preservation for the use of animals.

It must be acknowledged, that the diving-bell, with these late improvements, is a very curious machine; and yet it seems to have been outdone in some respects by an invention of the famous Cornelius Drebell, (whom we have heretofore mentioned) if all be true that we are told concerning it. He contrived not only a vessel to be rowed under water, but also a liquor that would supply the want of fresh air. The vessel was made for king James I. and carried twelve rowers, besides the passengers. It was tried in the river Thames, and one of the persons who was in the vessel when the experiment was made, told it to another, who gave an account of it to the ingenious Mr. Boyle. As to the liquor, Mr. Boyle assures us, he discovered, by a physician who married Drebell's daughter, that it was used as occasion required, when the air in the submarine boat was clogged by the breath of the

tumble into the pit upon taking out the oysters. The pits being cleared of the grosser filth, the sand is several times sifted, to separate the pearls; but notwithstanding all their care, they lose a great many. When the pearls are dried and sifted, they are passed through a sieve according to their sizes; and the smallest are sold under the name of the Seed of Pearls, and the rest by auction to the highest bidder.

WE hope the reader will not think he has been too long detained upon a subject that makes so curious a part of natural history; but we are now going to shift the scene, and present to his view some of the works of art, in a description of several of the most magnificent antiquities in the Persian empire.

ANTIQUITIES.

IT might be thought a great omission to pass over the ruins of the palace of Persepolis, destroyed by Alexander the Great, by the persuasion of Thais the Athenian courtesan, since of this structure, which was the residence of the ancient kings of Persia, there are still some remains. It was once scarce inferior to any palace in the world in splendor and magnificence; and there are now to be seen broken walls, adorned with sculpture; stair-cases of vast extent, and pillars of a very disagreeable company, and rendered unfit for respiration; at which time, by unstopping a vessel full of this liquor, he could presently restore to the troubled air such a quantity of vital parts, as made it useful again for a considerable time. The secret of this liquor Drebell would never disclose to more than one person, who communicated the preparation to Mr. Boyle; from whose Exp. Phys. Mech. of the Spring of the Air, Dr. Derham has related this story, but much questions whether the virtues of the liquor were so effectual as reported.

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ferent form from any of the orders of architecture, that declare the height of the fallen roofs. These ruins are about thirty miles to the north of Schiras, and are seated in a plain, partly encompassed by a range of mountains. The front extended 600 paces from north to south, and 390 from east to west. The stones of the wall are black, and harder than marble, some finely polished, and many of them of such a surprizing size, that it is difficult to conceive how the ancient Persians were able to raise and move such prodigious masses. Several grand portals are still standing, adorned with columns and basso-relievos; and there are still to be seen a great number of pedestals from which the columns have fallen. In short, these ruins have an air of grandeur and magnificence, that fill the mind of the curious beholder with astonishment*.

NEAR the neighbouring mountain, are two tombs of the ancient kings of Persia hewn out of the rock, and adorned with columns, relievo, and statues placed in niches. And at the distance of two leagues from these ruins, are four tombs of persons of eminence among the ancient Persians, that much resemble those just mentioned.

BUILDINGS.

WITH respect to the modern buildings of Persia, it will be sufficient to observe, that the dreadful wars which have for a long time past laid waste that unhappy country, have levelled many of their cities and palaces with the ground; hence the whole country exhibits a scene of ruin and desolation. We shall therefore only endeavour to give the reader an idea of the caravanseras or inns of Persia, by describing the royal one at Ca-

* For a more particular description of these ruins, see the *World Displayed*, vol. XV.

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shan, which is esteemed the finest in the Persian empire. It is a square building, every side of the court or area within being two hundred geometrical paces. It has two stories, with a sort of antichamber below, that runs the whole length of two of the fronts, railed about the height of a man above the court, and four inches lower than the level of the chamber. The second story is contrived like that below, with a balustrade four feet high, that lets in the light, and runs round the structure. The entrance is under a high and magnificent portal, adorned with mosaic work, as is the rest of the building; and in the middle of the court is a fine fountain. The hinder part of this caravansera consists of large stables, rooms for servants and luggage, store-houses, and lodgings for the poor, and for the country-people who bring their goods to market; and behind all are large gardens.—The caravanseras built on the roads are somewhat different from those in the cities: these are often erected in dry, barren, desert places, and some of them are furnished with water from a great distance, and at a vast expence, there being no caravansera without its well or cistern. As they are designed for the reception of companies of merchants travelling together, with their camels, mules, merchandise, &c. they are always large buildings, without any distinct rooms or partitions. There are several hearths and chimneys at proper distances from each other, where they dress their victuals; and after supper their bed is quickly made, it consisting only of a mat or carpet spread open, a saddle supplying the place of a pillow, and their clothes serving them for a covering. They are designed for travellers, of whatever quality, country, or religion; and many of them are provided with straw, barley, bread, and rice, at the expence of the founder.

END OF VOL. III.

